UC-NRLF
$C 18 926

American Schools of Mechanical Technology

Buffalo Forge Co.
Equipment
Buffalo, N.Y.
U.S.A.

YE 10217

LIBRARY
OF THE
UNIVERSITY OF CALIFORNIA.
GIFT OF
Buffalo Forge co.
Received Oct. , 1899.
Accession No. 77536 . Class No.

TO CORRESPONDENTS:

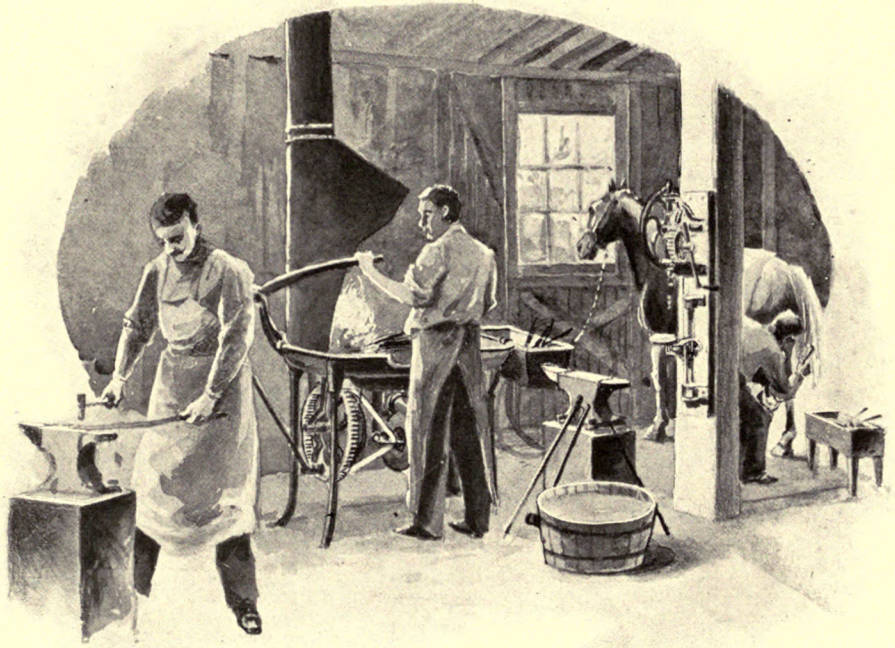
The book "American Schools of Mechanical Technology" is furnished free to buyers of such equipments as are described therein. Copies are obtainable by others at 50c. each, in paper cover; 65c., cloth cover, including transportation. This figure scarcely covers the cost of publication.

BUFFALO FORGE COMPANY,
BUFFALO, N. Y.



Mechanical Technology — "That training in the useful arts which prepares for manufacturing and engineering pursuits." *Wentworth.*

LIBRARY OF THE UNIVERSITY OF CALIFORNIA



THE VILLAGE BLACKSMITH.

AMERICAN SCHOOLS OF MECHANICAL TECHNOLOGY

AND TYPICAL INDUSTRIAL ESTABLISHMENTS.

BUFFALO FORGE COMPANY EQUIPMENT

. . . OF . . .

FORGES, BLACKSMITH TOOLS, BLOWERS, EXHAUSTERS, FAN SYSTEM OF HEATING AND VENTILATING, MECHANICAL DRAFT FANS AND APPARATUS, AUTOMATIC HORIZONTAL AND UPRIGHT STEAM ENGINES.

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

BUFFALO FORGE COMPANY,

REGISTERED CABLE ADDRESS, "FORGE."
LONG DISTANCE TELEPHONE SERVICE.

BUFFALO, N. Y., U. S. A.

BRANCH STORES AND OFFICES: { NEW YORK, PHILADELPHIA, PITTSBURG, CHICAGO, LONDON, PARIS, ST. PETERSBURG, COPENHAGEN.

T73
B8



1899
COPYRIGHTED BY
BUFFALO FORGE
COMPANY,
BUFFALO, N. Y.
U. S. A.

775-5-6

ENGRAVED, PRINTED AND BOUND AT THE ART-PRINTING WORKS OF
THE MATTHEWS-NORTHRUP CO.,
BUFFALO, N. Y.

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

FOREWORD.

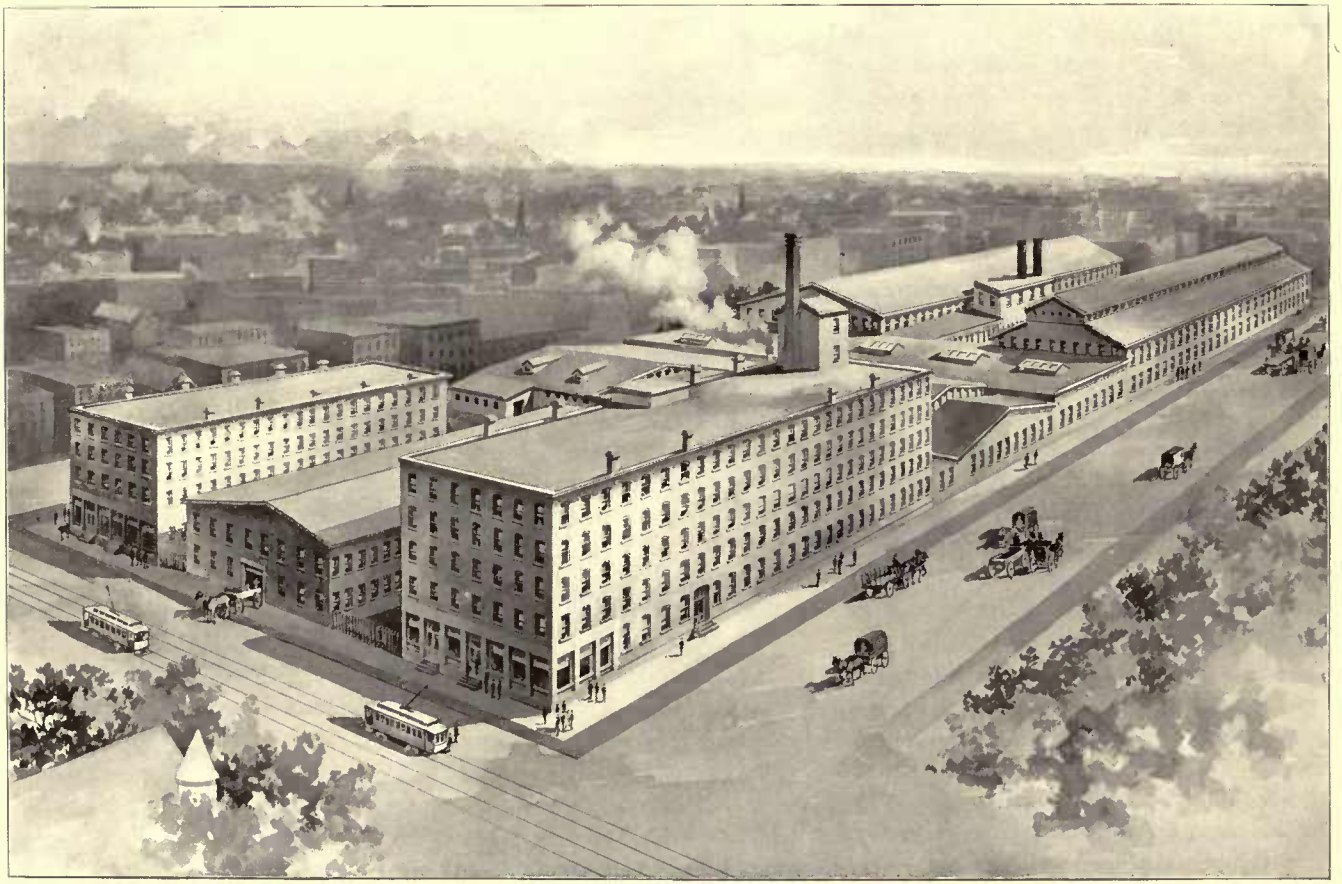
THE high standard of American skilled labor in the mechanical world is universally conceded. Generally speaking, United States manufacturers class it as the most efficient. There can be no more forcible indication of the opinion of Europeans than their present extensive and increasing purchases of American machinery. Our schools of Mechanical Technology constitute an important factor in maintaining this rank. While the growth in numbers is marked, their educational advancement is still more highly gratifying.

Of the value of modern facilities in the manufactory, also for test and experiment no question can exist. The latest approved developments are represented in the 'smithy by down-draft forges, in the electrical department by the unit of generator and engine direct attached, in the boiler plant by mechanical draft, and in heating and ventilating of all campus and industrial buildings by the fan system. No apology is needed for the presentation herewith of some forms of equipment typical of earlier practice, for the expense of supplanting with improvements as brought out would be beyond reason. So this catalogue illustrates varied examples in schools, but only outfits of late design in its reference to mills and shops of prominence.

The scheme of removing smoke and fumes from 'smith fires immediately as generated is one upon which considerable time and money had been expended by this Company in experimenting before the first Buffalo Forges of down-draft type were patented and placed upon sale. The perfected design of the down-draft hood has been readily adapted to all sizes and types of Buffalo Stationary Forges. While eminently suited to Manual Training School work — and here widely employed — manufacturing establishments, on account of their greater number, are naturally the larger users. A few illustrations only of the latter are here shown, owing to the difficulty of obtaining satisfactory photographs. This is due mainly to the relatively large area of blacksmith shops of the factory compared to those of the training school.

Some manufacturers have unblushingly copied and catalogued the latest types of Buffalo Down-Draft Forges, sundry applications of the Buffalo Fan System of Heating, Ventilating and Drying, and Buffalo Mechanical Draft Apparatus. Included in these are many direct infringements upon patents issued to this house. Purchasers are requested to exercise due discretion in making selections, as our rights will be vigorously upheld. Buyers of Buffalo goods may rely, as heretofore, upon obtaining the most efficient machinery of the latest and most practical designs, built and furnished with that perfection of detail obtainable only from the resources of a plant unequaled by any similar one in the world in extent or completeness of its equipment.

BUFFALO FORGE CO.



BUFFALO FORGE COMPANY'S WORKS, BUFFALO, N. Y., U. S. A.

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

ABOUT BUFFALO.— No American city is to-day drawing an amount of new capital and industries equal to that of Buffalo. Its commercial facilities are unexcelled. Twenty-seven railroads enter the city, with nearly 700 miles of trackage within the limits, and 250 daily passenger trains. Essentially, Buffalo is the eastern terminus of all the great lake boat lines, therefore, it has unsurpassed facilities for transportation by water routes. Aside from natural advantages, and concerning the usual important features of a city, the comparative standing of Buffalo is very high, and in many cases leads all others. The Falls of Niagara stand perpetually alone in the world for vastness of water and fall, and the stupendous power consequent thereto. They are now harnessed, and electric power at low cost in unlimited amount is available along the entire course of the river. This, coupled also with cheap fuel, affords to Buffalo manufacturing advantages unattainable elsewhere.

LOCATION OF PLANT.— Less than one mile from the business center of the city, the works of the Buffalo Forge Company are situated. The space occupied constitutes the entire block bounded by Broadway, Mortimer, Tousey and Champlin Streets. The Broadway and Sycamore Electric Railway lines (the former being the more direct route) afford ready access to the plant from depots and hotels.

THE BUILDINGS AND THEIR USES.— In the five-story front, right-hand or southeast structure, Buffalo Forges, Hand Blowers, Punch, Shear and Bar Cutters, Blacksmith Drills, Tire Up-setters, Disc Wheels, Steel Pressure Blowers, and "B" Volume Blowers and "B" Exhaust Fans are built. The main steam plant is located on the ground floor.

The center front building comprises a well-arranged and convenient stock room. The second floor constitutes the sheet and galvanized iron department. Herein the majority of blast wheels for the various types of blowers and exhausters are made. There is a large one and one-half story building, with gallery, on Spring Street, not illustrated in the accompanying engraving, used for warehouse purposes.

The several one and one-half story structures directly back of the three front brick buildings, are used for the erection of heaters, steel plate fans and planing mill exhausters. The facilities of this department are such as to enable the testing of mammoth steel plate blowers, 30 feet in diameter, to their full capacity. In the section where hot blast heaters are built, many miles of pipe are consumed annually. Frequently, a single heater order requires from four to six miles of one-inch pipe, were it laid in single continuous lengths. The northeast gallery type structure was especially built, arranged and equipped for engine construction, with the most modern and expensive tools.

All conveniences incident to a modern foundry are provided in the northwest corner building. Adjacent to the various main buildings are pattern vaults, blacksmith shops, etc. The humble original shop of this company is still preserved; a glance at it and the spacious surrounding ones affords the most vivid picture of the progress of this industry that could be presented.

AMERICAN SCHOOLS OF MECHANICAL TECHNOLOGY,

BUFFALO FORGE COMPANY EQUIPMENT.



CENTRAL MANUAL TRAINING SCHOOL, CLEVELAND, OHIO.

AMERICAN SCHOOLS OF MECHANICAL TECHNOLOGY.

TYPICAL INDUSTRIAL WORKS. BUFFALO FORGE COMPANY EQUIPMENT.

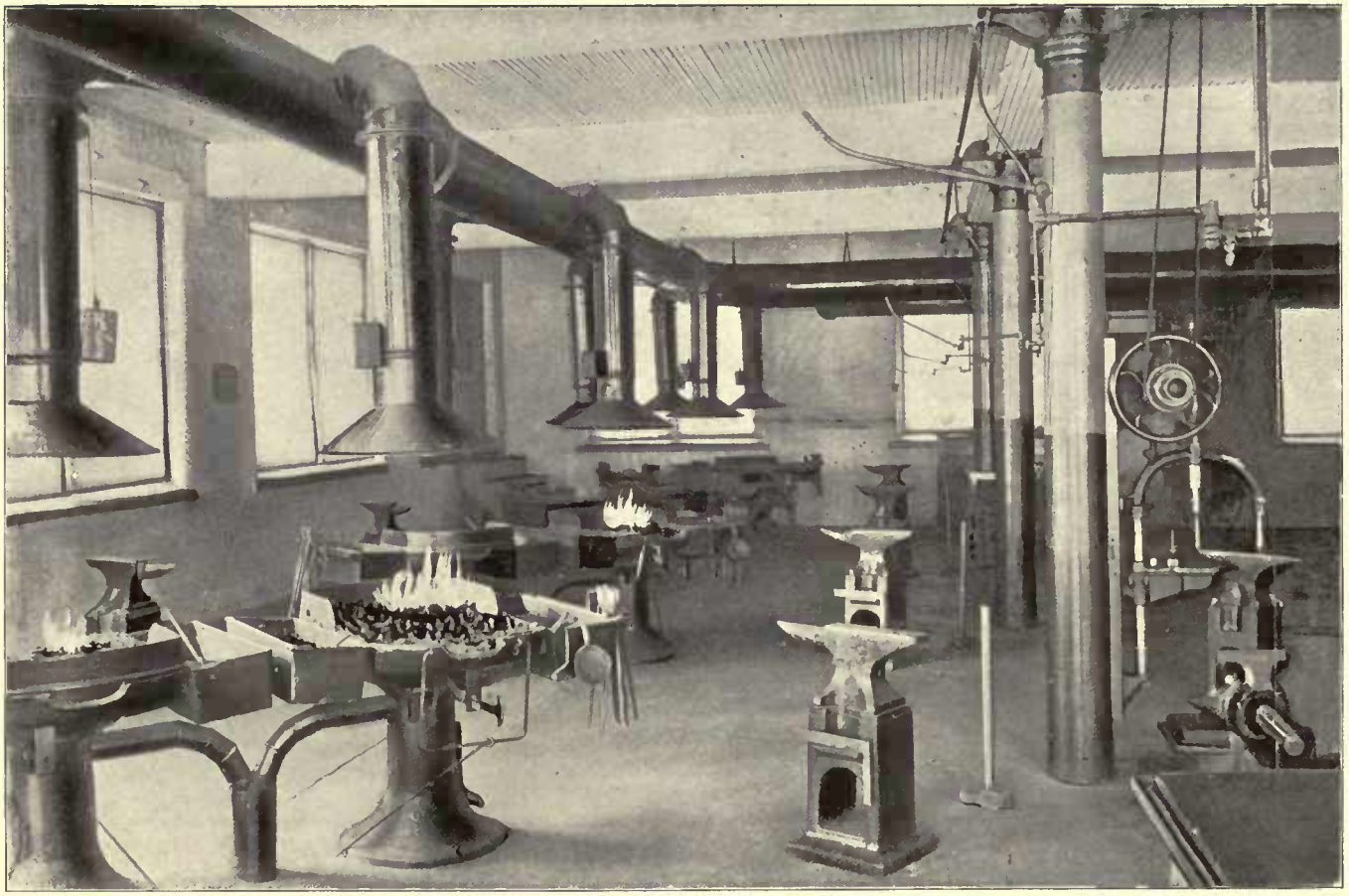
THIS book is no exception to all others issued by manufacturers, and is primarily intended to serve in the capacity of extending the business of our Company. Let not the reader infer, however, that in its preparation the plan has been to include all of the foremost or latest improved outfits furnished. To make the publication thus complete would require several times the number of pages included herein. The idea followed out, therefore, has been to select those views which would make the best illustrations. Many of our friends have kindly forwarded photographs of plants — models in the way of arrangement and efficiency — which, unfortunately, cannot be used on account of the inability to reproduce in presentable half-tones. Excellent interior views can only be obtained under favorable conditions. Too strong inflowing light from windows is disastrous to the securing of good results, while flash-light photographs are uncertain. These difficulties have compelled us to exclude many prominent installations we had hoped to embody.

A number of the very earliest technical forge shops in America, whose equipments remain in the original forms, here appear. In these the greatest interest centers, for they have been the stepping stones to developments without precedent in the field of Mechanical Technology. Later and the present most approved and modern outfits are also illustrated. The latter embody forges of the down-draft type, and combined blowers and exhausters. The first cost of a down-draft forge system exceeds one of the previous type with overhead piping, but affords a plant almost indestructible. Purchasers of the other form must expect to replace the galvanized iron piping about as frequently as is necessary to renew an ordinary stove-pipe. In this connection the two interior views of the Stout Manual Training School will be of interest. The first building was destroyed by fire soon after its completion. These same forges were taken from the debris, and erected in the new building in position as shown by the engraving. The life and practical indestructibility of a down-draft equipment is thus clearly demonstrated. Individual description of the extent and arrangement of the various plants cannot herewith be presented, but interested parties will be cheerfully furnished with such data upon request, in the form of copies of the specifications and drawings.

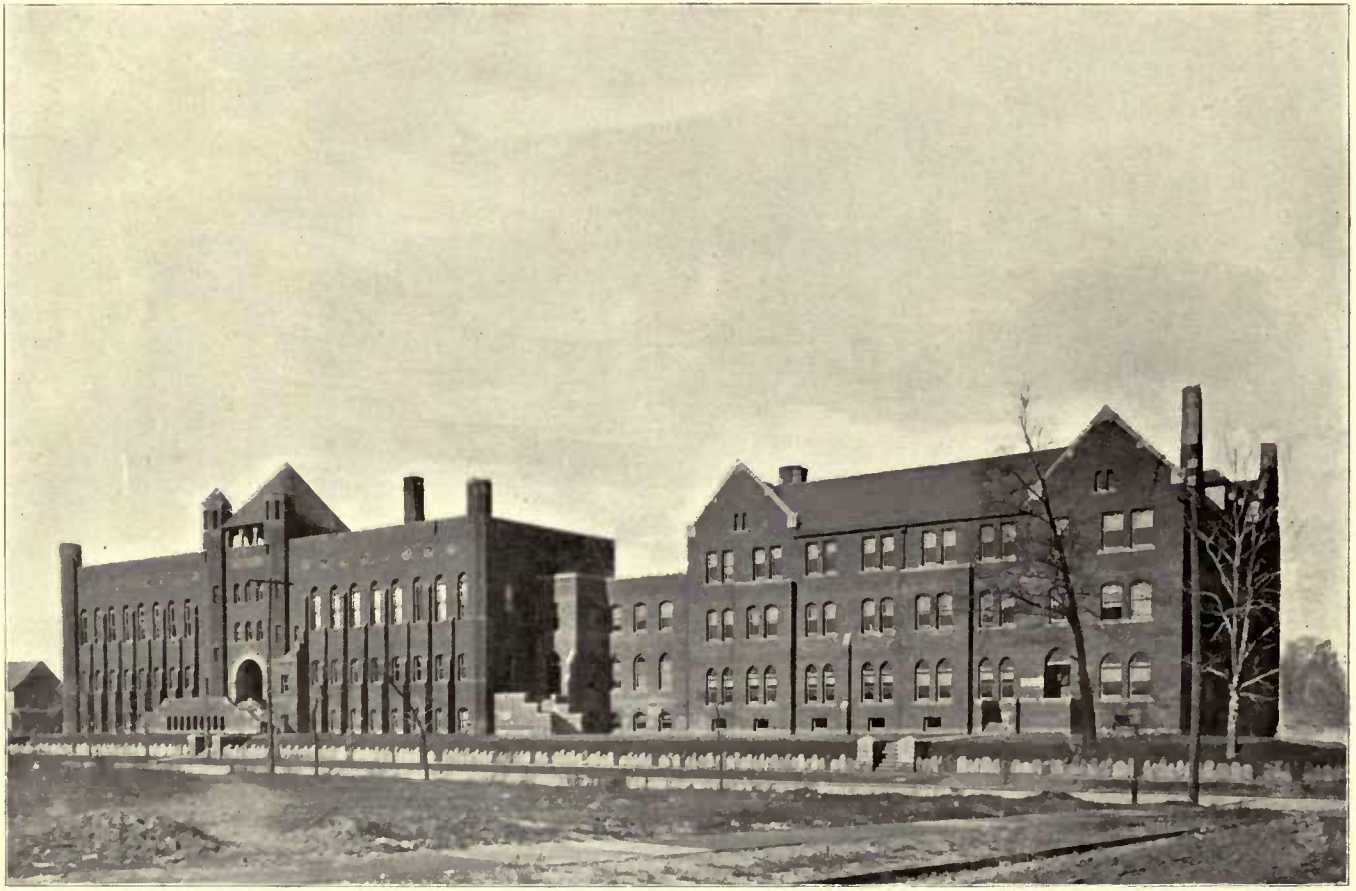
Those unacquainted with the extent of the work of this Company may have formed the impression that forge-shop equipment is the principal portion of our industry. Such is but natural by reason of the word "Buffalo" in itself being typical of the highest perfection in the line of forges, blacksmiths' tools, blowers and exhausters from their inception. But this idea is erroneous. The term is as closely associated with the Fan System of Heating, Ventilating and Drying, Electric Light Engines, Mechanical Draft Outfits, etc. These latter apparati enter as an indispensable factor into a multitude of industrial processes. The machinery is usually of generous size, and involves large tools for its construction, so by far the most extensive portion of the works is the department devoted to the building of Buffalo fans, engines and heaters.



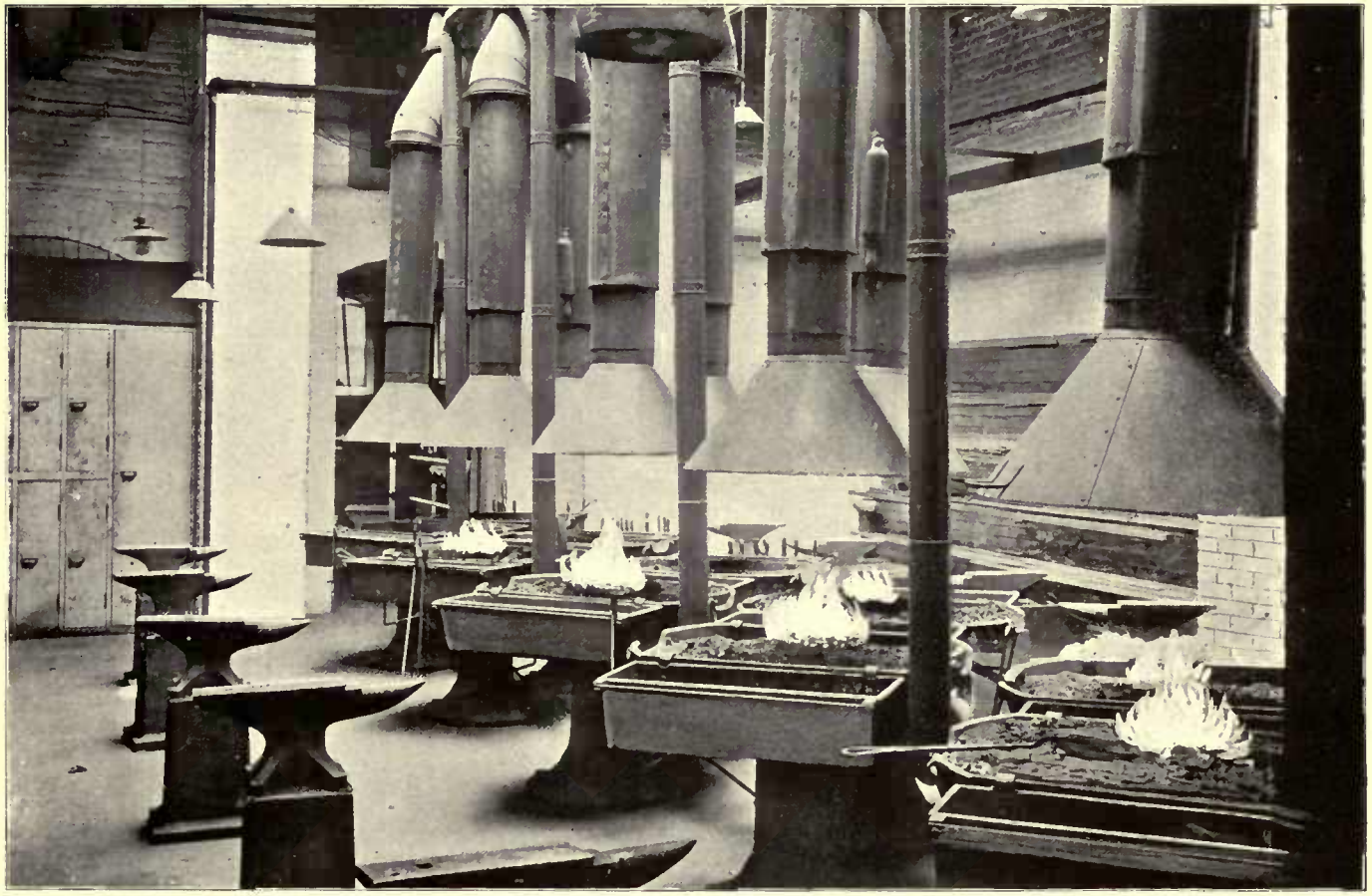
CENTRAL MANUAL TRAINING SCHOOL, CLEVELAND, OHIO.—MAIN BUILDING.



CENTRAL MANUAL TRAINING SCHOOL, CLEVELAND, OHIO.—FORGE SHOP INTERIOR.



UNIVERSITY SCHOOL, CLEVELAND, OHIO.—MAIN BUILDINGS.



UNIVERSITY SCHOOL, CLEVELAND, OHIO.—FORGE SHOP INTERIOR.



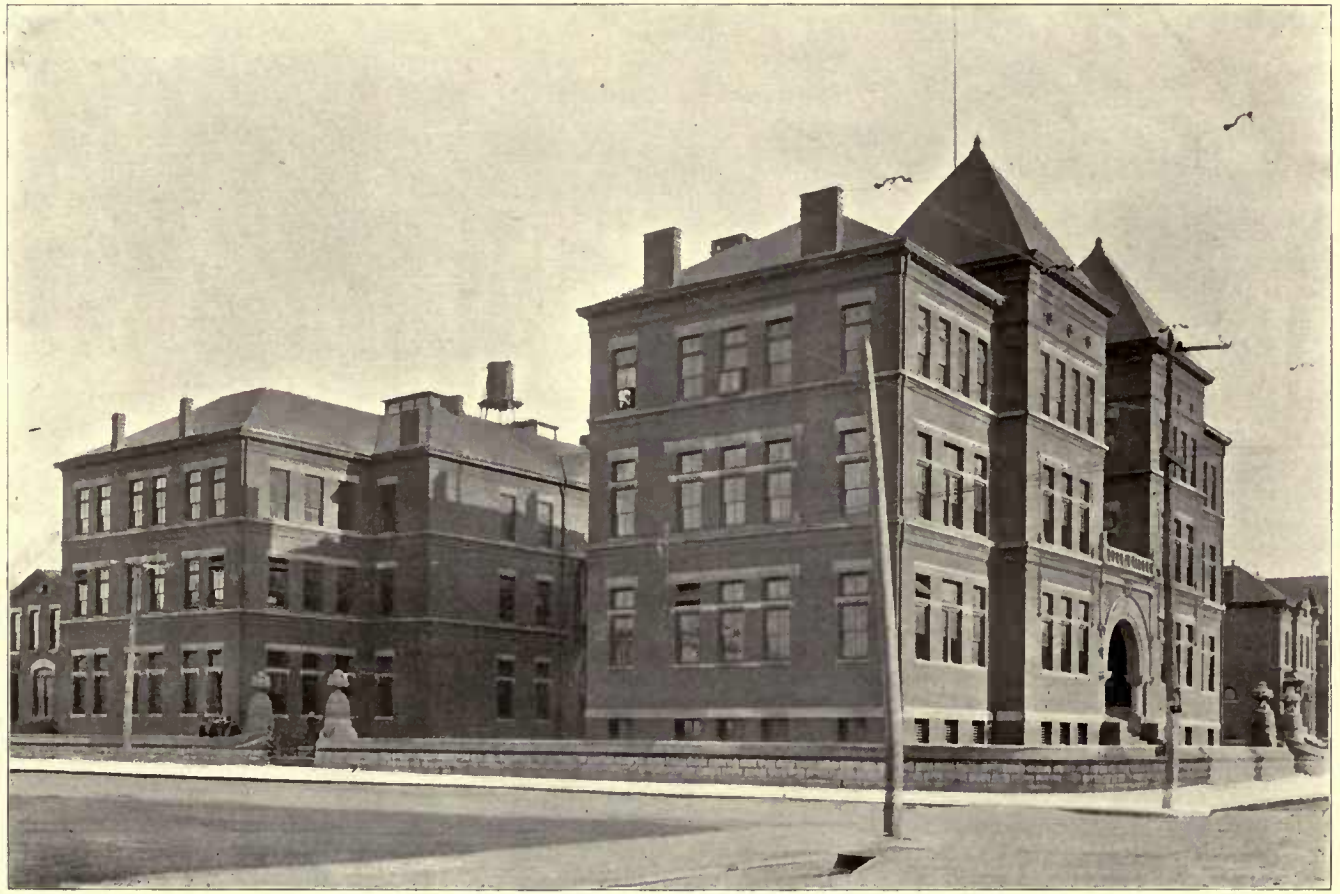
WEST MANUAL TRAINING SCHOOL, CLEVELAND, OHIO.—MAIN BUILDING.

AMERICAN SCHOOLS OF MECHANICAL TECHNOLOGY,

BUFFALO FORGE COMPANY EQUIPMENT.



WEST MANUAL TRAINING SCHOOL, CLEVELAND, OHIO.— FORGE SHOP INTERIOR.

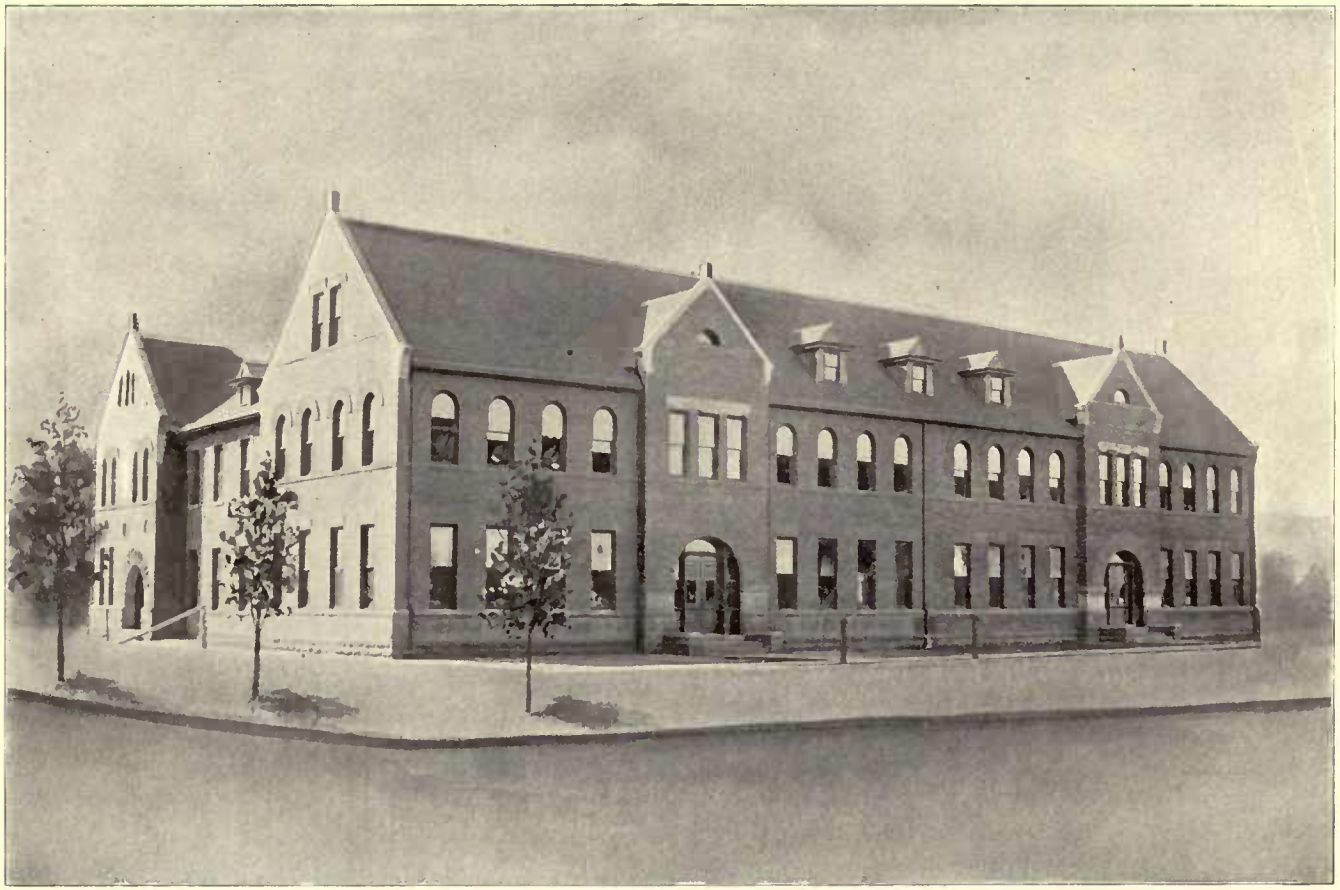


MANUAL TRAINING HIGH SCHOOL, LOUISVILLE, KY.—MAIN BUILDING.

LIBRARY OF THE UNIVERSITY OF CALIFORNIA



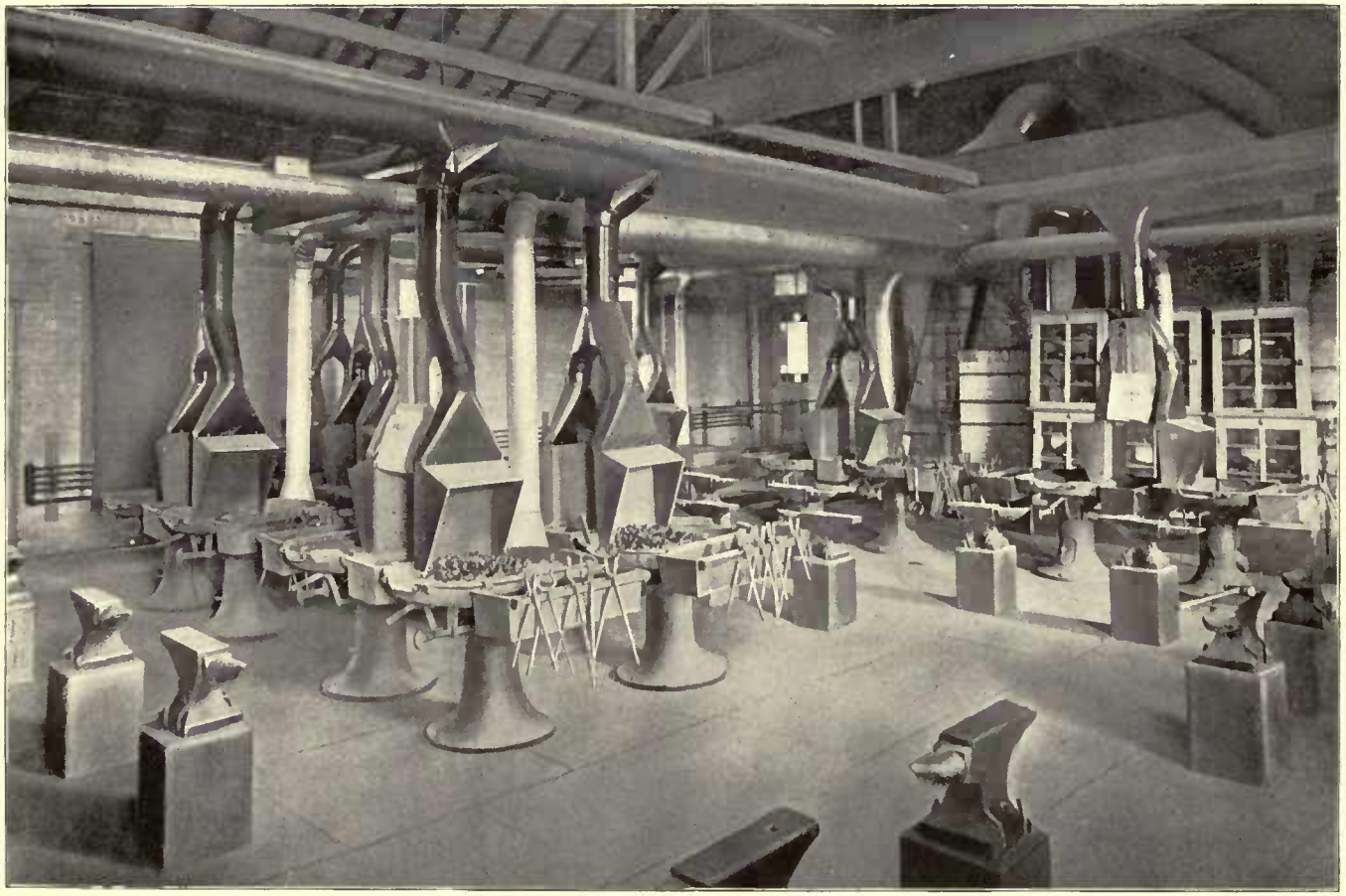
MANUAL TRAINING HIGH SCHOOL, LOUISVILLE, KY.—FORGE SHOP INTERIOR.



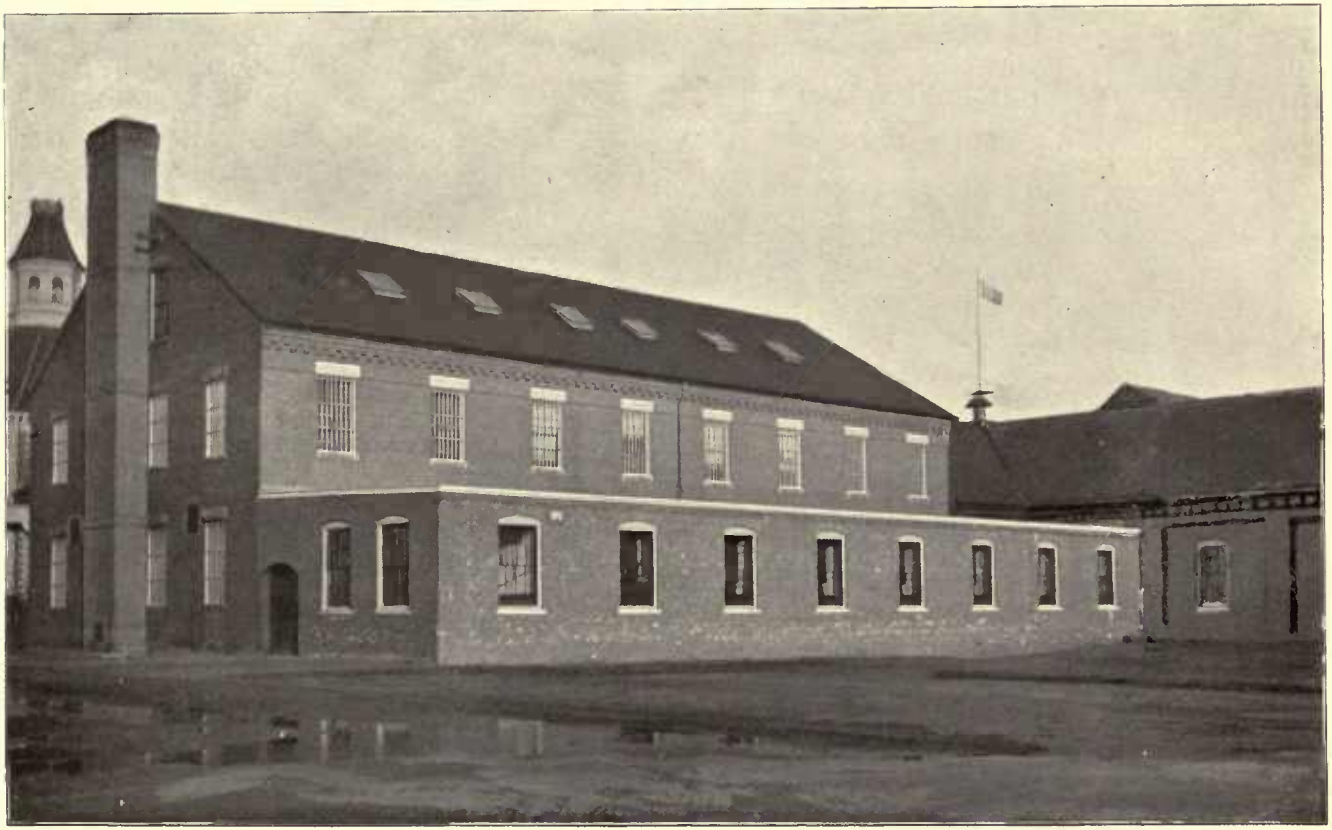
STATE AGRICULTURAL COLLEGE, FORT COLLINS, COL.—MECHANICAL ENGINEERING BUILDING.

AMERICAN SCHOOLS OF MECHANICAL TECHNOLOGY,

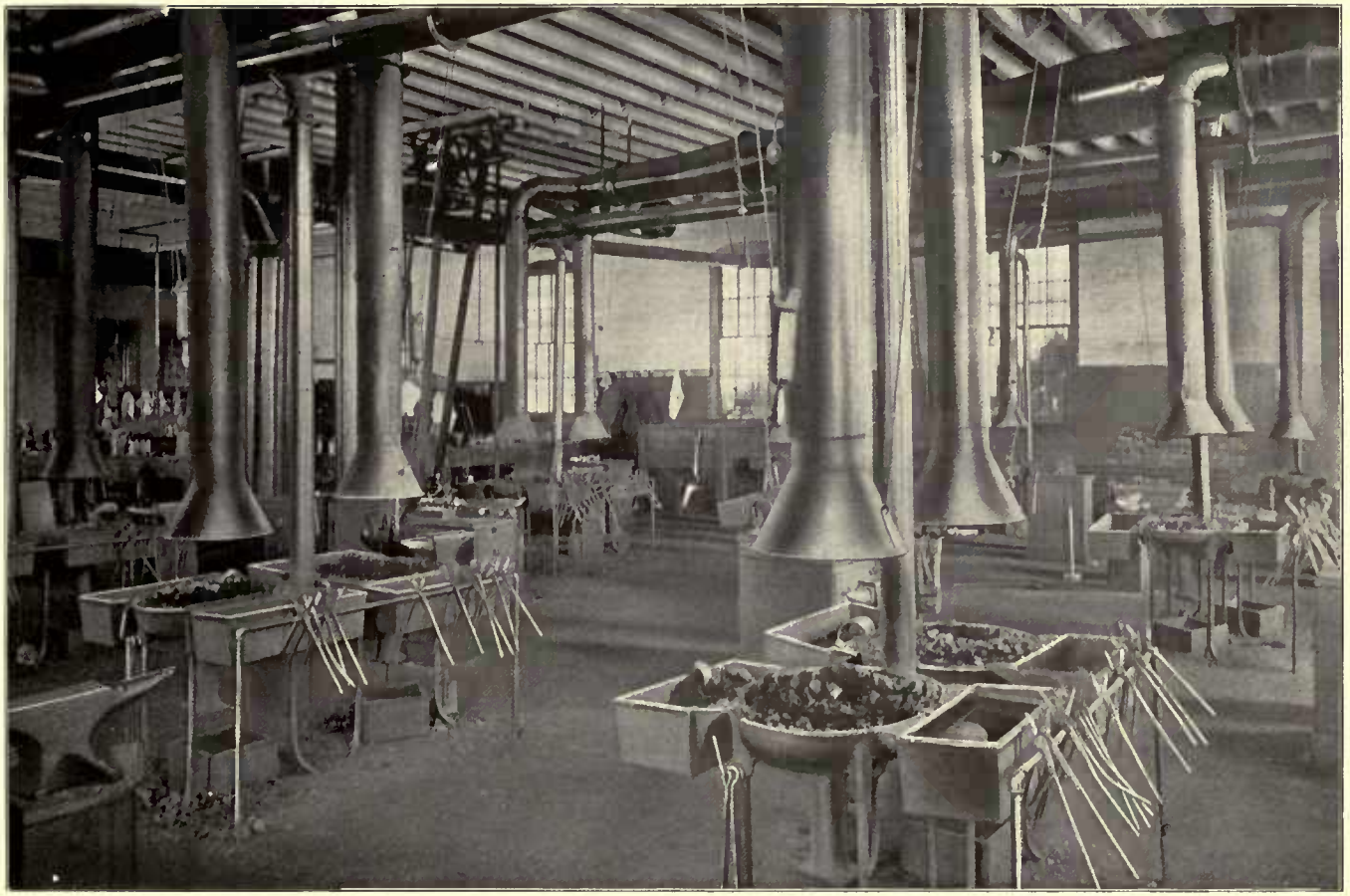
BUFFALO FORGE COMPANY EQUIPMENT.



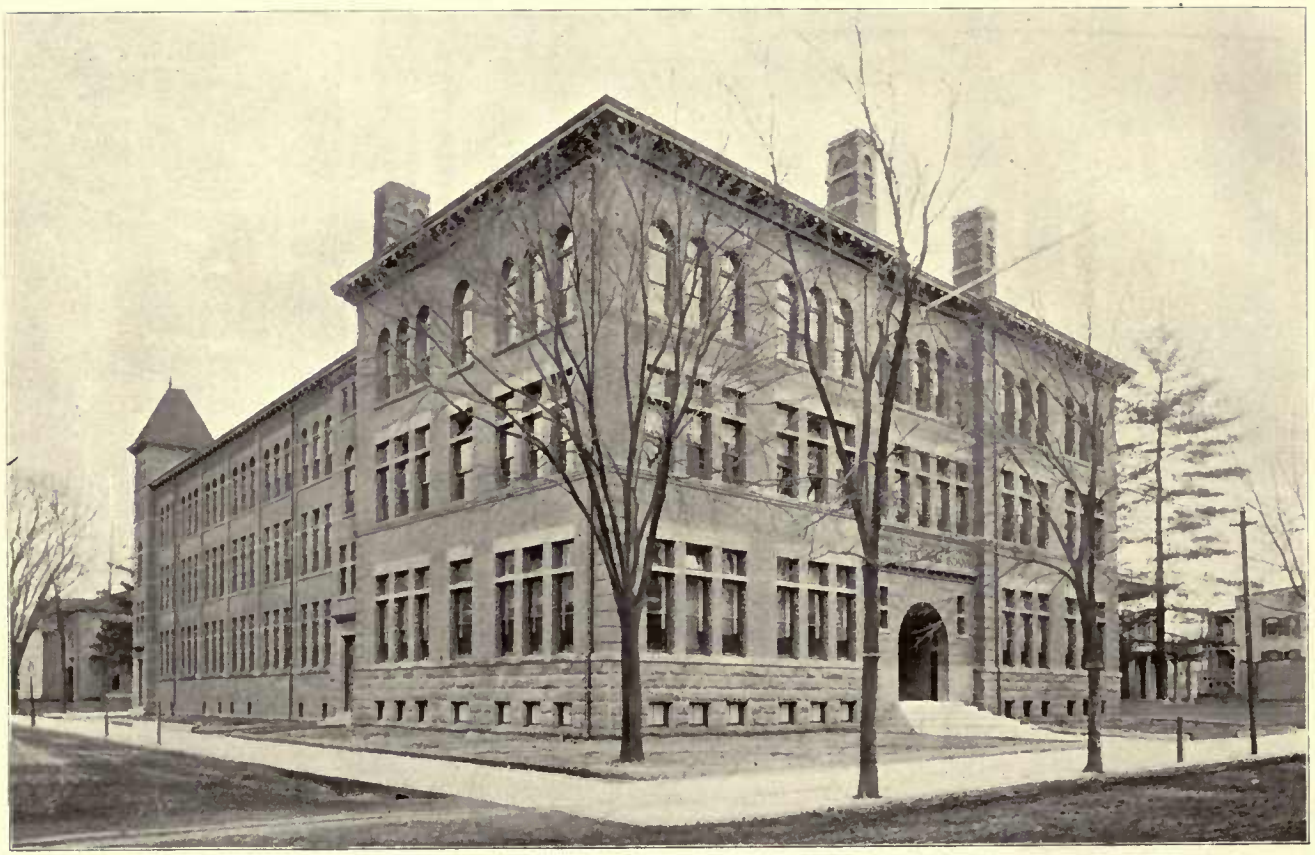
STATE AGRICULTURAL COLLEGE, FORT COLLINS, COL.—FORGE SHOP INTERIOR.



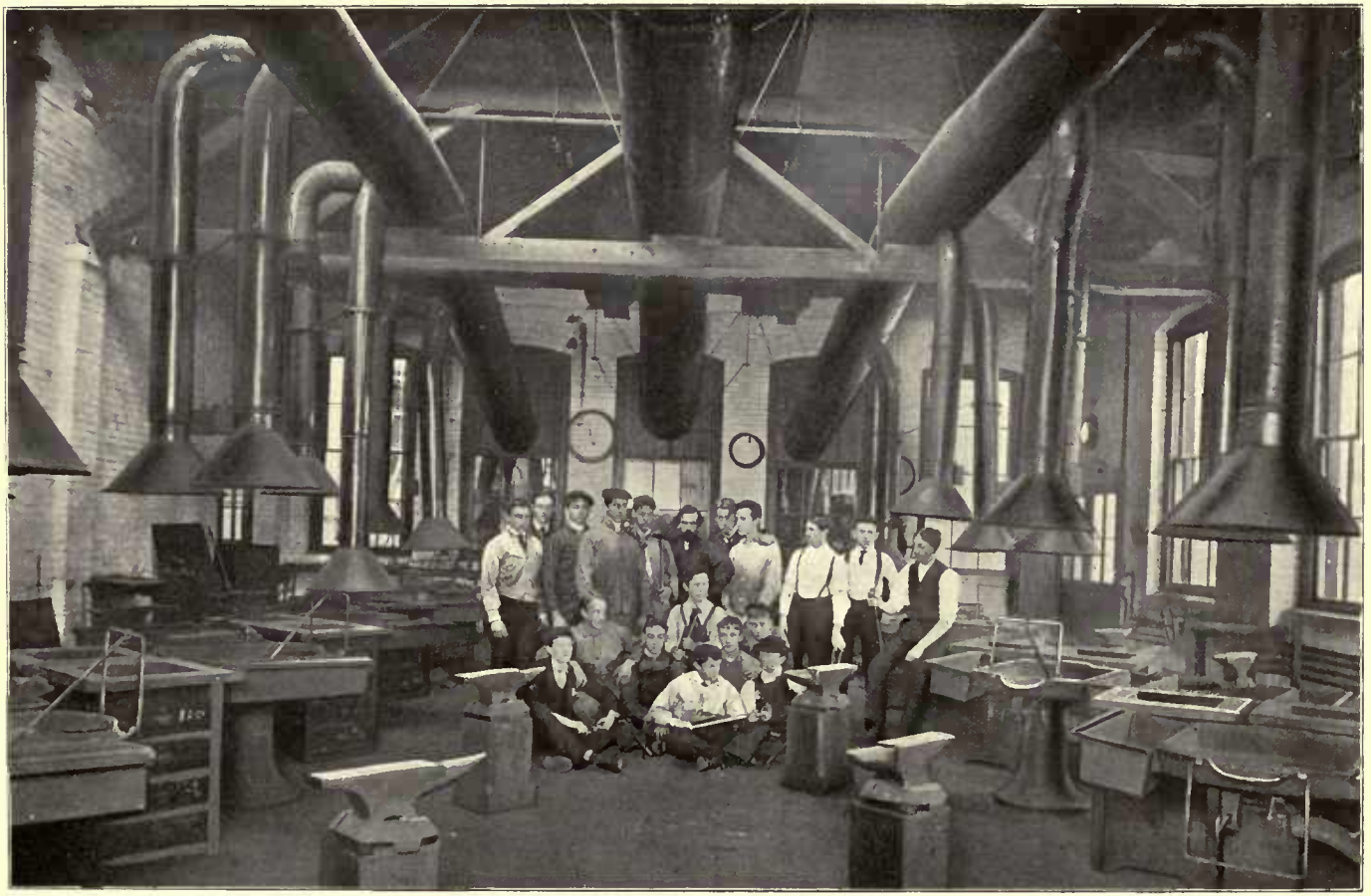
MASSACHUSETTS STATE REFORMATORY, CONCORD JUNCTION, MASS.—MECHANICAL BUILDING.



MASSACHUSETTS STATE REFORMATORY, CONCORD JUNCTION, MASS.—FORGE SHOP INTERIOR.



BOARDMAN MANUAL TRAINING HIGH SCHOOL, NEW HAVEN, CONN.—MAIN BUILDING.



BOARDMAN MANUAL TRAINING HIGH SCHOOL, NEW HAVEN, CONN.—FORGE SHOP INTERIOR.



WISCONSIN SCHOOL FOR THE DEAF, DELAVAN, WIS.—MANUAL TRAINING BUILDING.



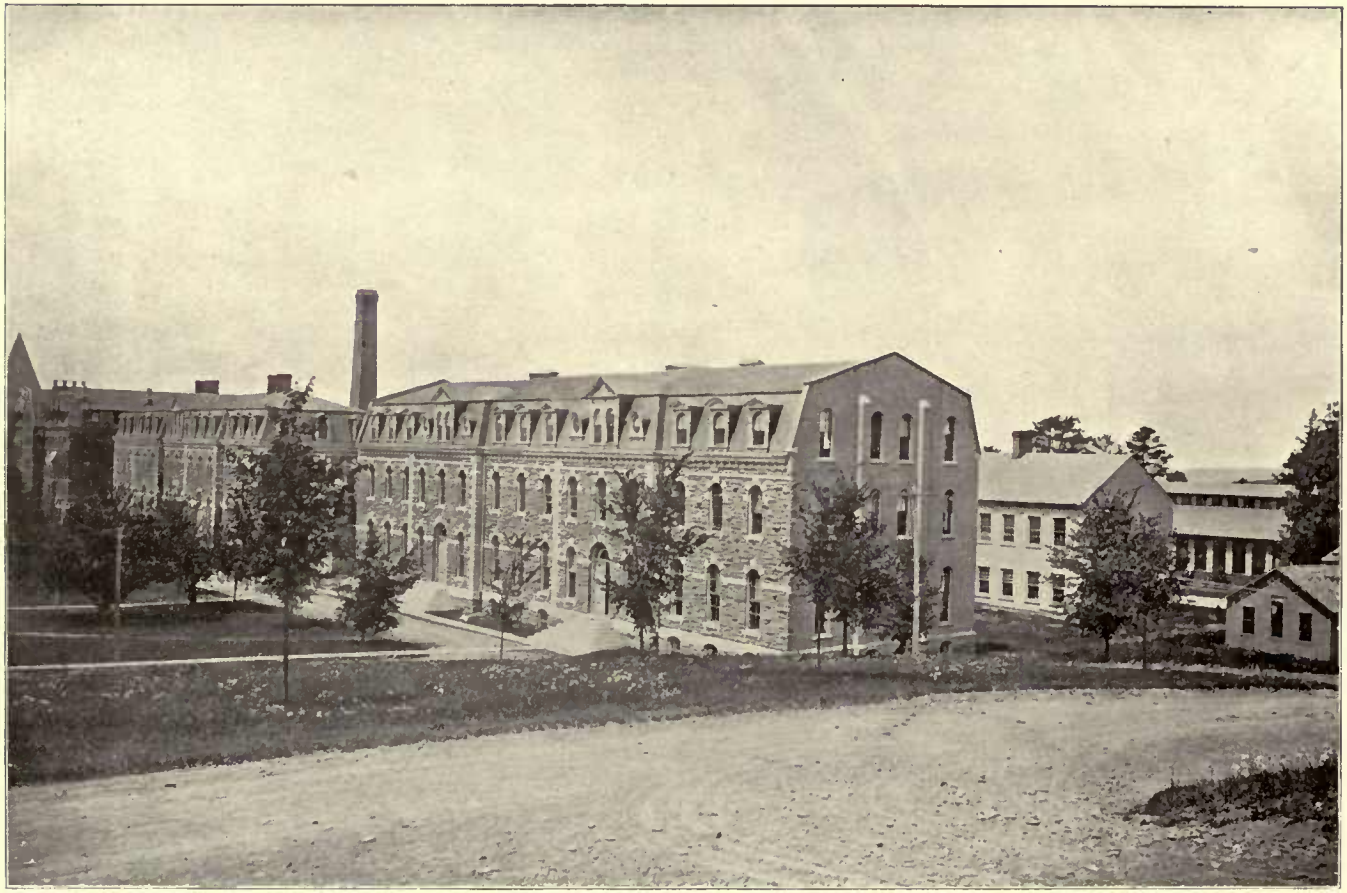
WISCONSIN SCHOOL FOR THE DEAF, DELAVAN, WIS.—FORGE SHOP INTERIOR.



UNIVERSITY OF ILLINOIS, CHAMPAIGN, ILL.—MACHINERY BUILDING.



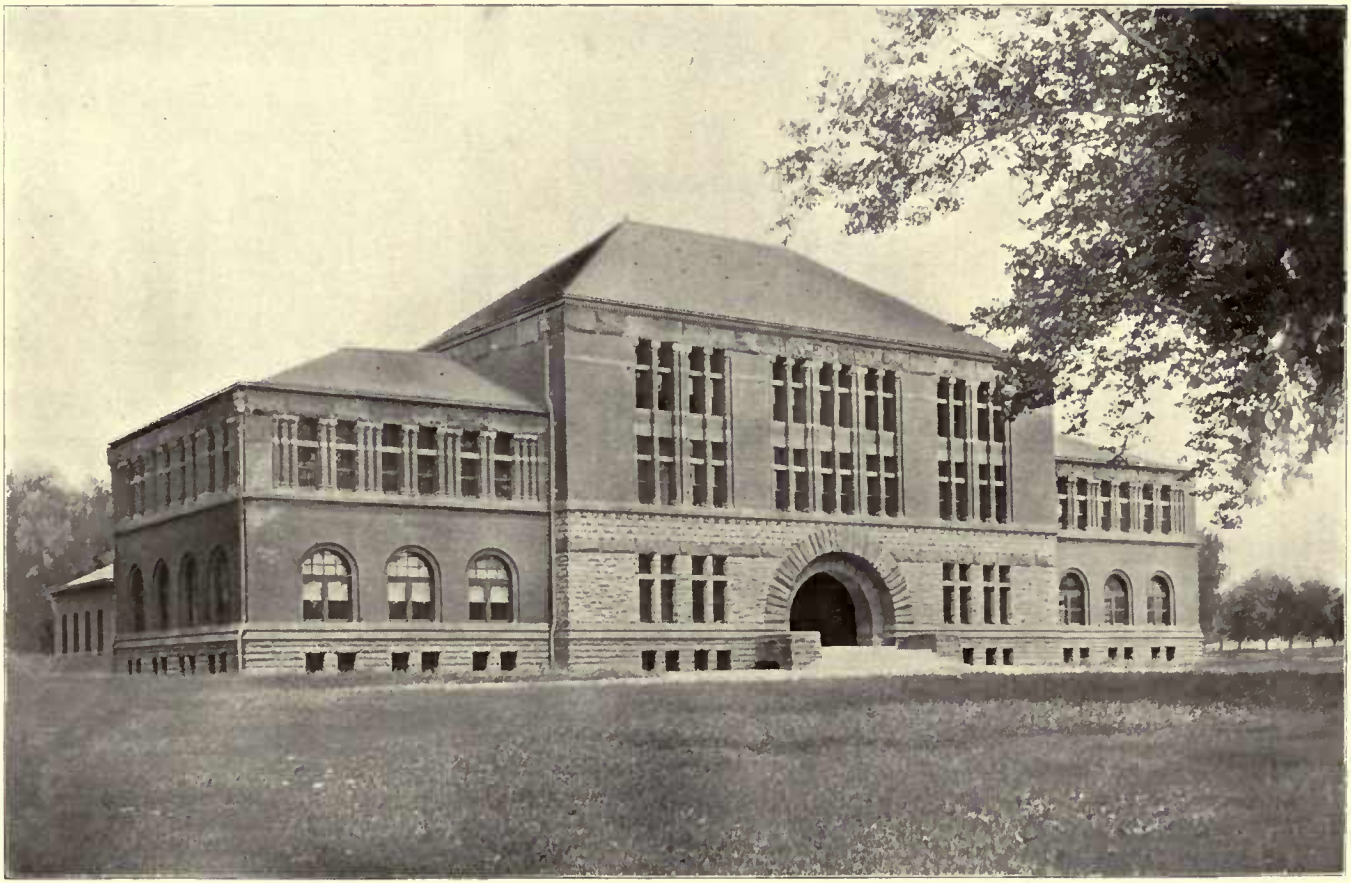
UNIVERSITY OF ILLINOIS, CHAMPAIGN, ILL.—FORGE SHOP INTERIOR.



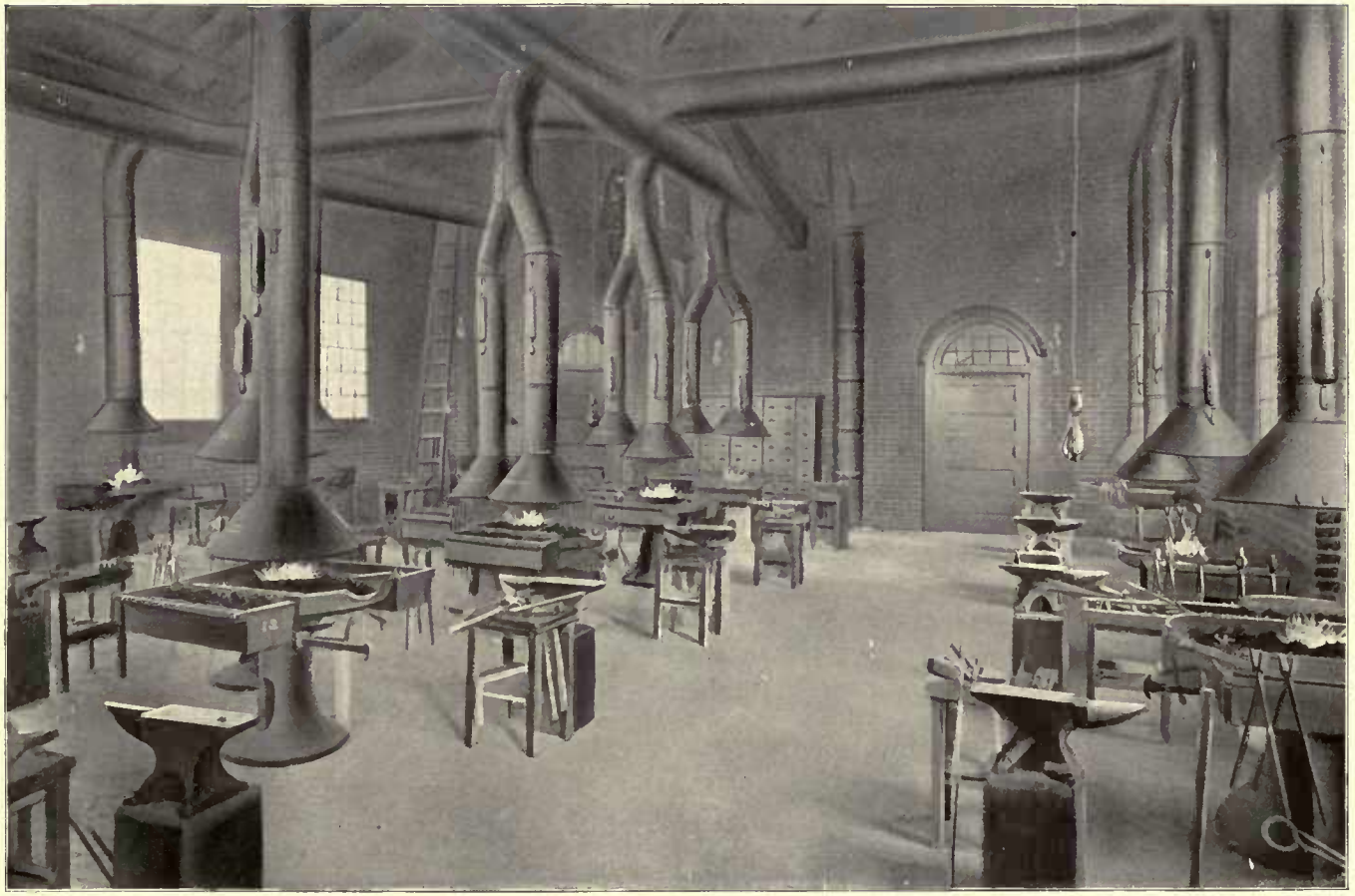
SIBLEY COLLEGE, CORNELL UNIVERSITY, ITHACA, N. Y. — MECHANICAL BUILDINGS.



SIBLEY COLLEGE, CORNELL UNIVERSITY, ITHACA, N. Y.—FORGE SHOP INTERIOR.



OHIO STATE UNIVERSITY, COLUMBUS, OHIO.—HAYES HALL.



HAYES HALL, OHIO STATE UNIVERSITY, COLUMBUS, OHIO.—FORGE SHOP INTERIOR.



ARKANSAS INDUSTRIAL UNIVERSITY, FAYETTEVILLE, ARK.—MECHANICAL BUILDING.



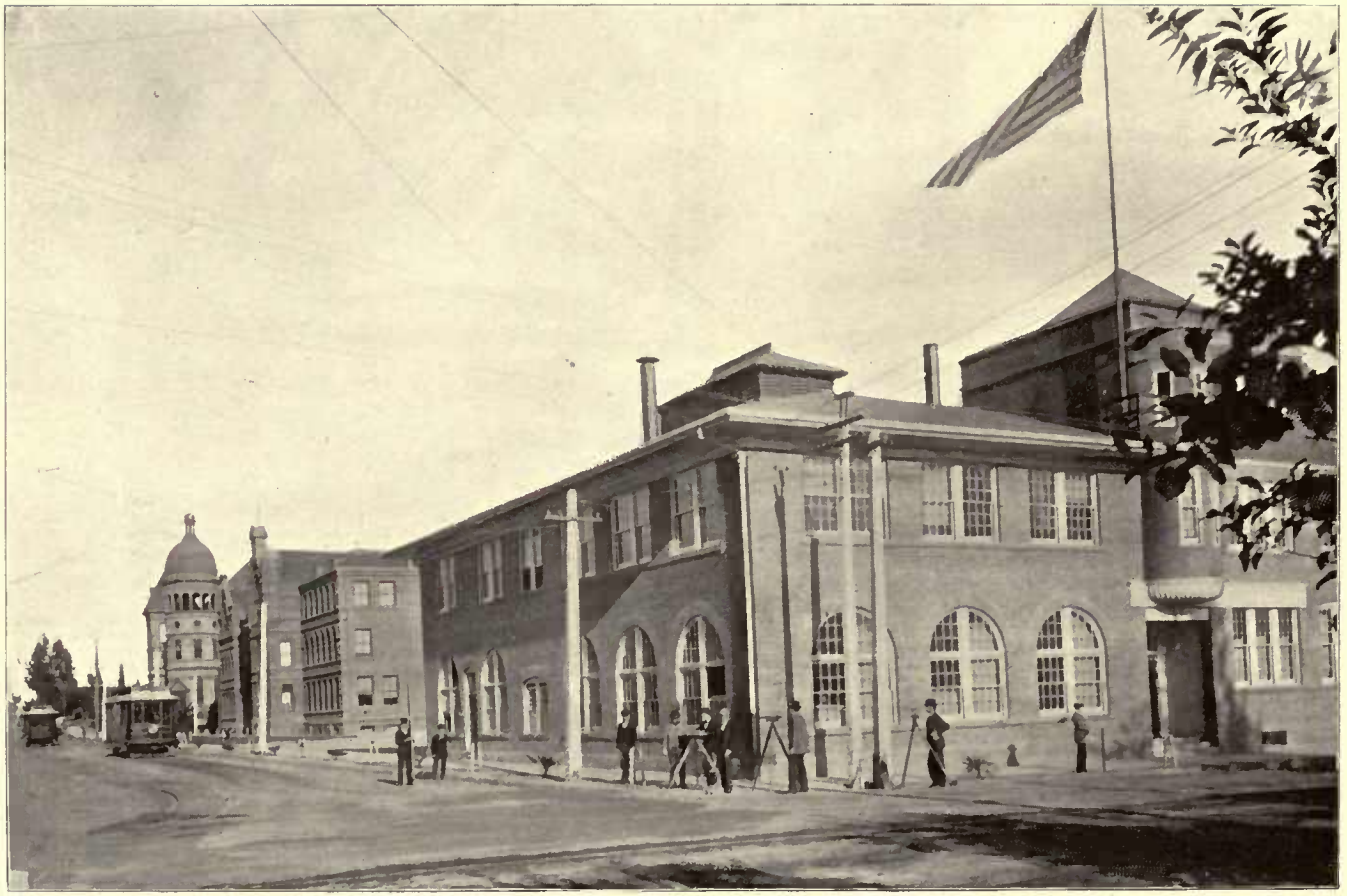
ARKANSAS INDUSTRIAL UNIVERSITY, FAYETTEVILLE, ARK.—FORGE SHOP INTERIOR.



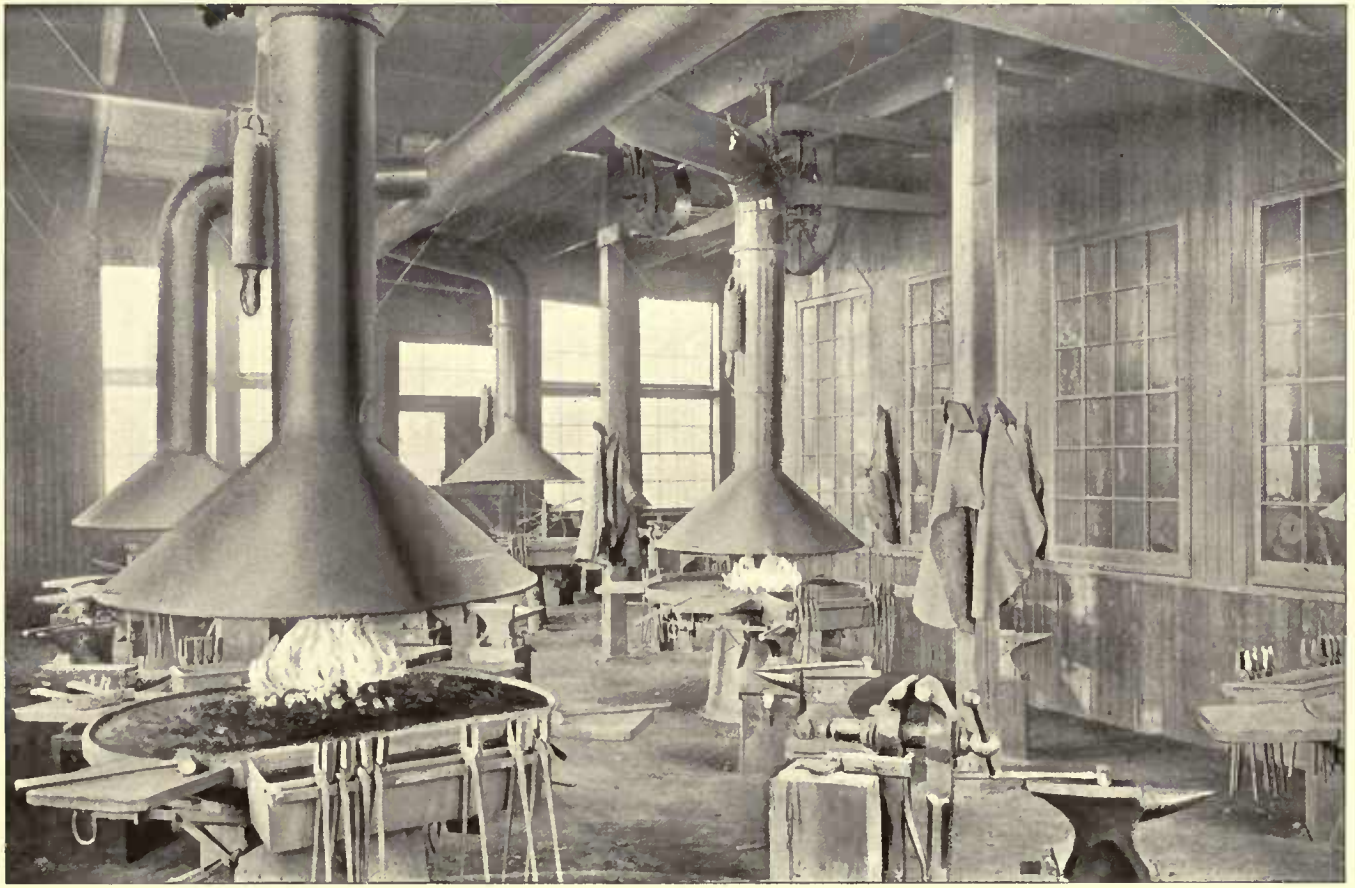
PENNSYLVANIA REFORM SCHOOL, MORGANZA, PA.—MAIN BUILDING.



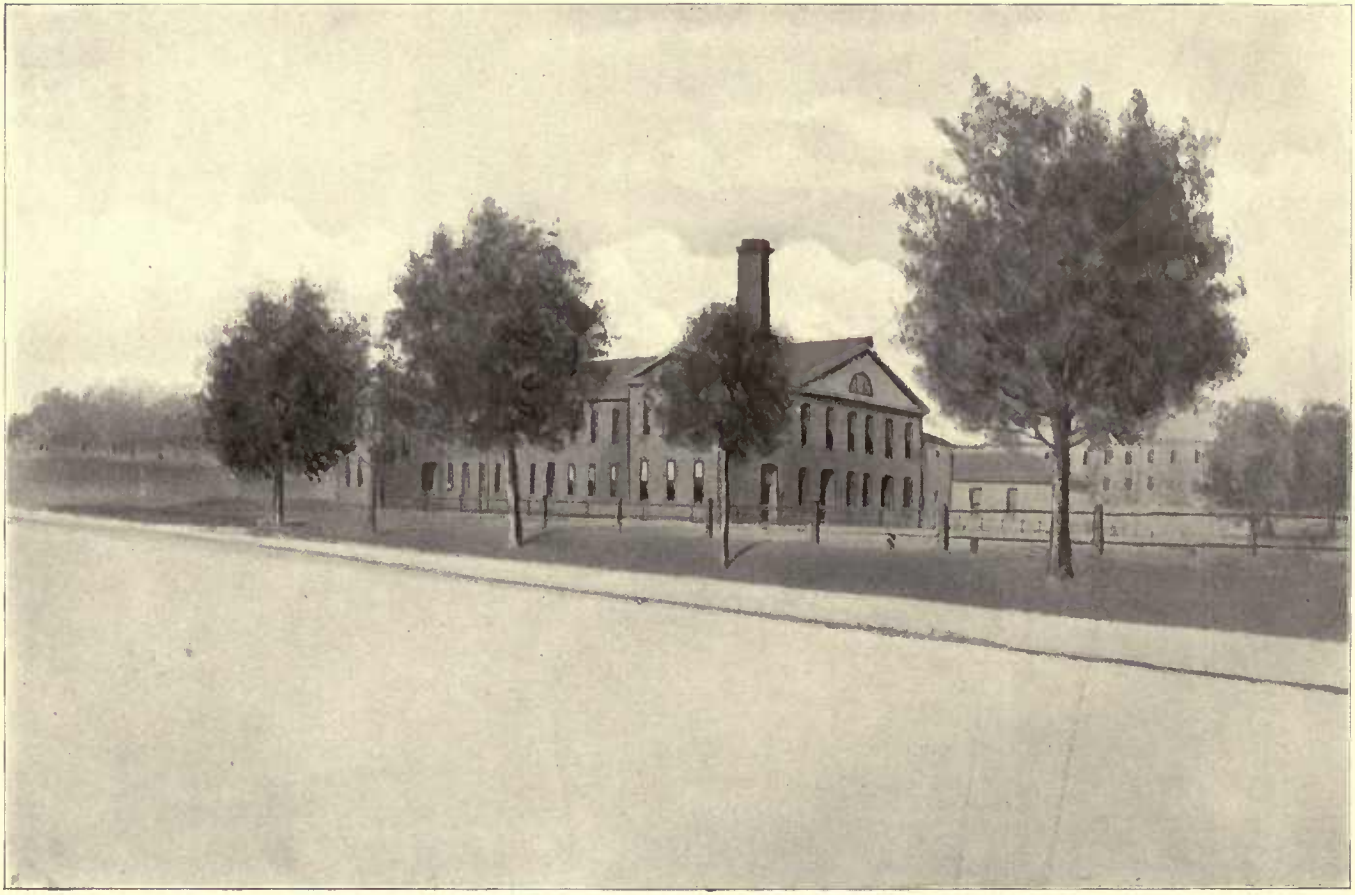
PENNSYLVANIA REFORM SCHOOL, MORGANZA, PA.—FORGE SHOP INTERIOR.



THROOP POLYTECHNIC INSTITUTE, PASADENA, CAL.—MECHANICAL BUILDING.



THROOP POLYTECHNIC INSTITUTE, PASADENA, CAL.—FORGE SHOP INTERIOR.



GIRARD COLLEGE, PHILADELPHIA, PA.—MECHANICAL BUILDING.



GIRARD COLLEGE, PHILADELPHIA, PA.—FORGE SHOP INTERIOR.

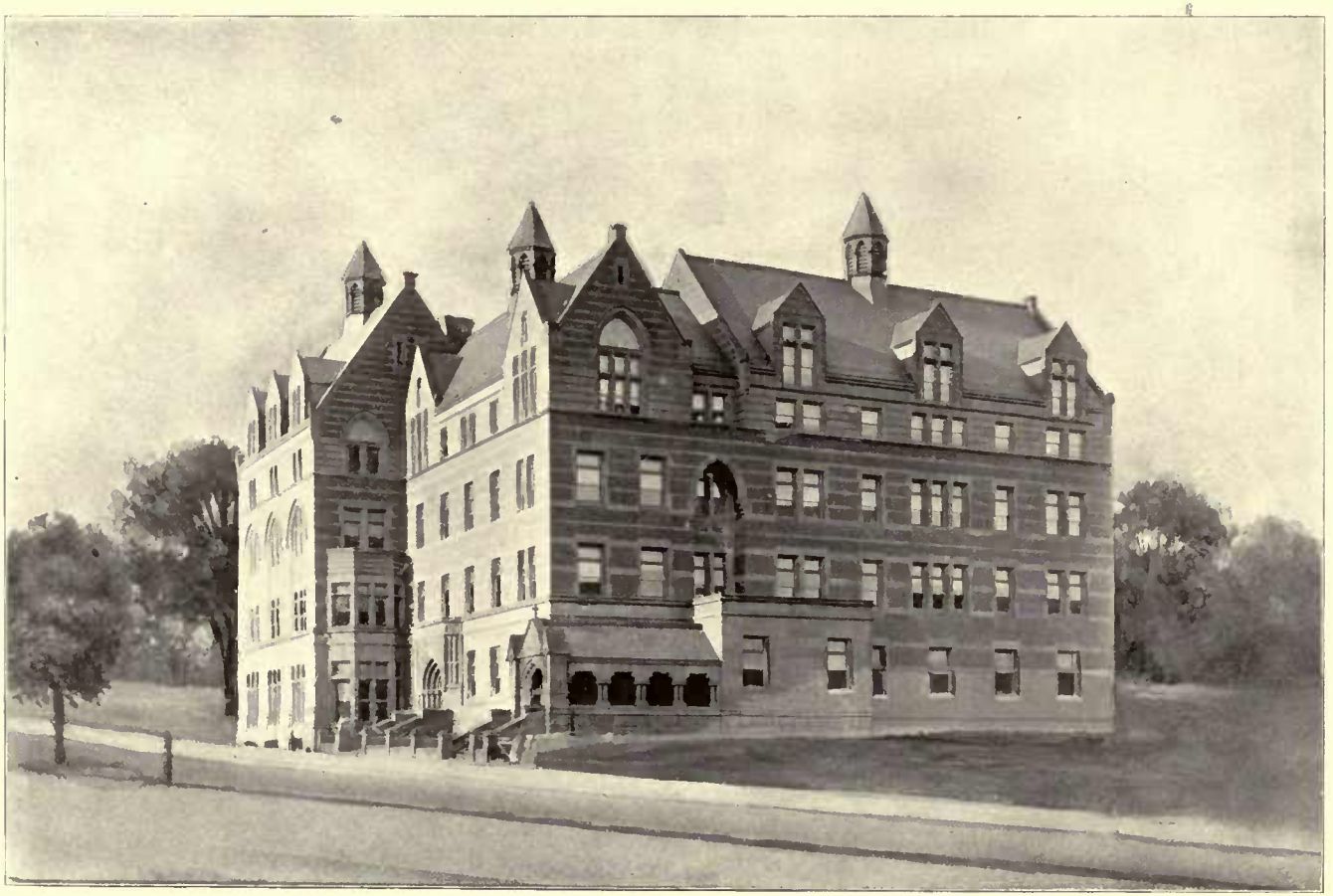


UNIVERSITY OF MISSOURI, COLUMBIA, MO.—ACADEMIC HALL.



UNIVERSITY OF MISSOURI, COLUMBIA, MO.—FORGE SHOP INTERIOR.

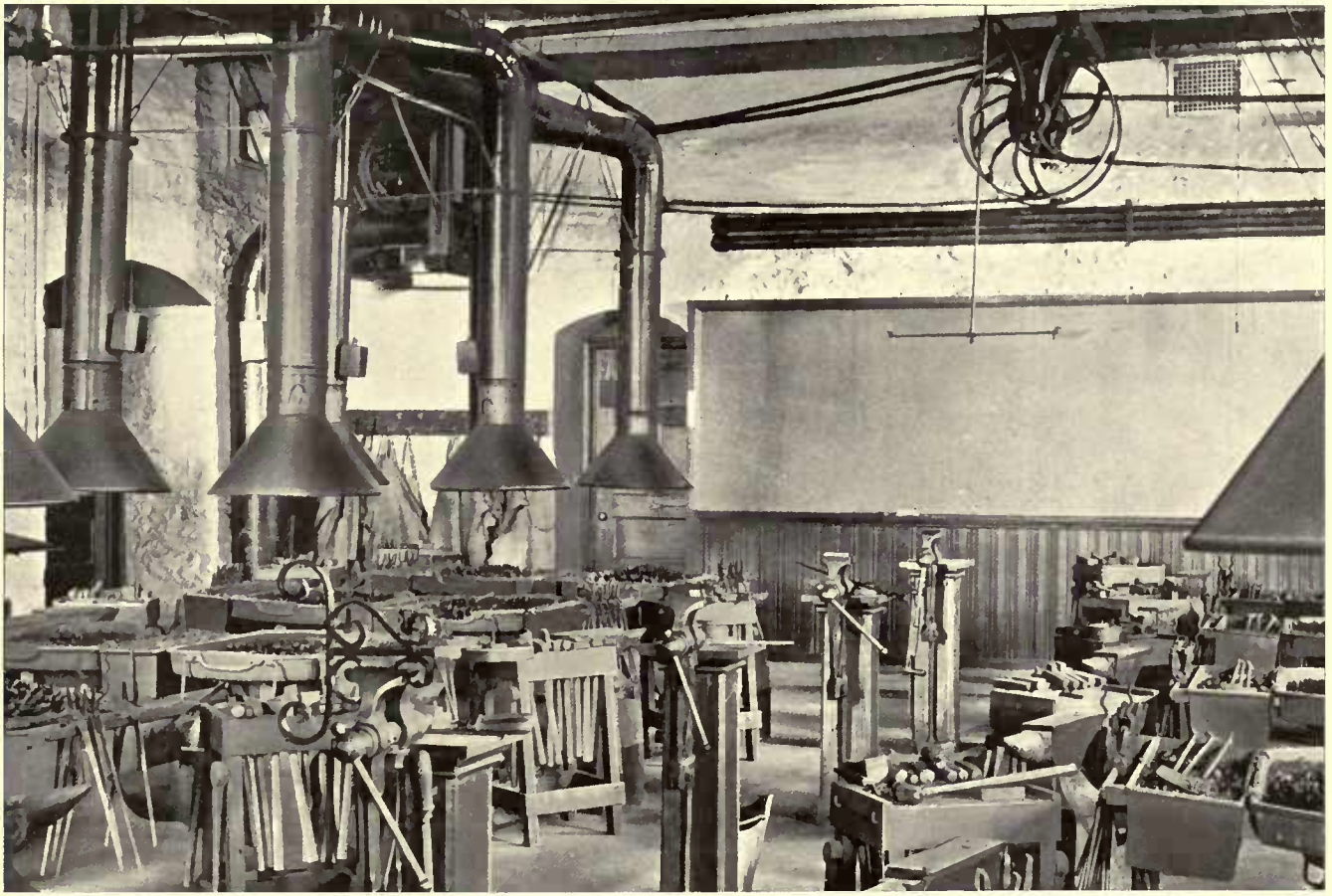
LIBRARY OF THE UNIVERSITY OF CALIFORNIA



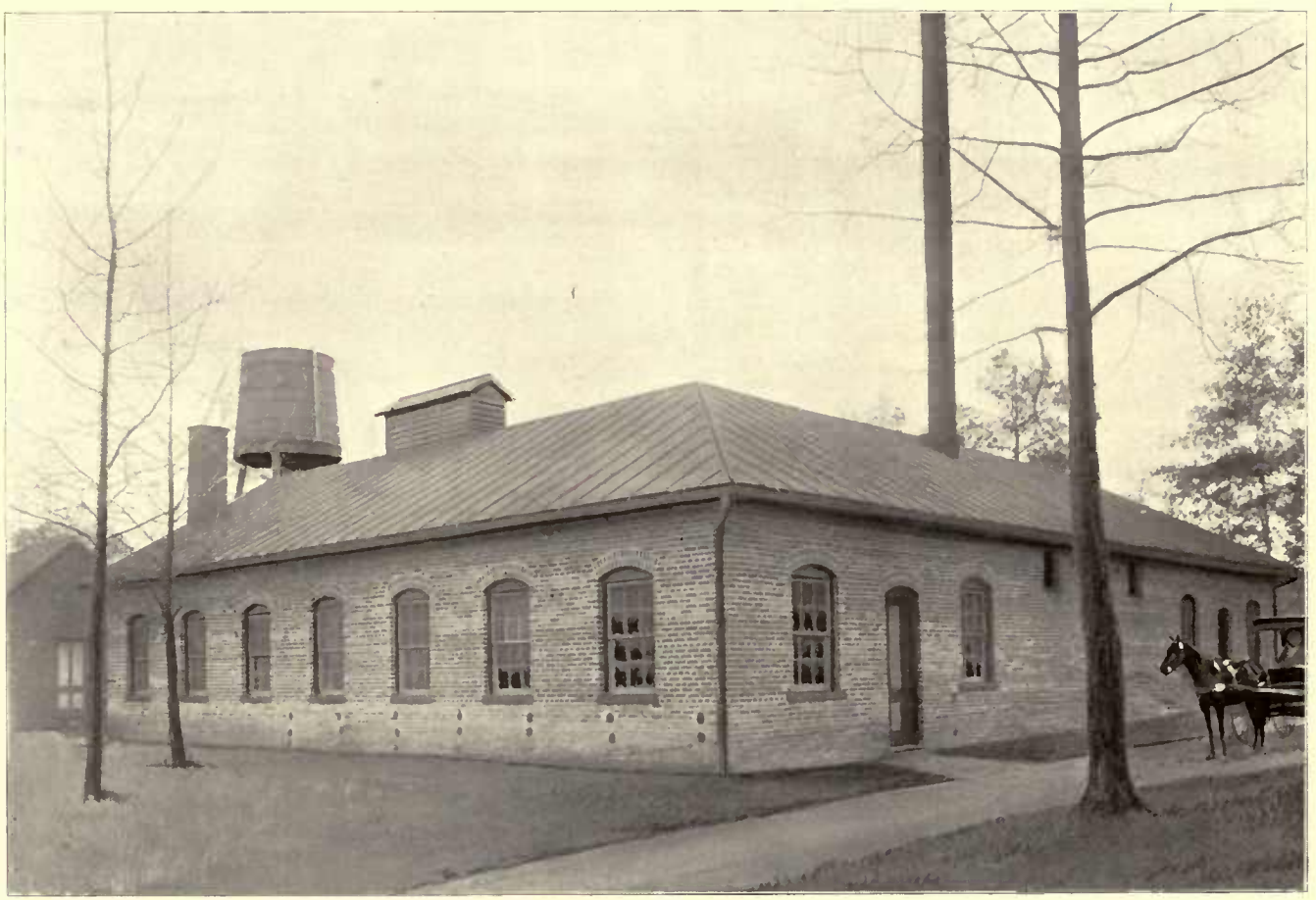
COLUMBIA UNIVERSITY, MORNINGSIDE HEIGHTS, NEW YORK CITY.—TEACHERS' COLLEGE.

AMERICAN SCHOOLS OF MECHANICAL TECHNOLOGY,

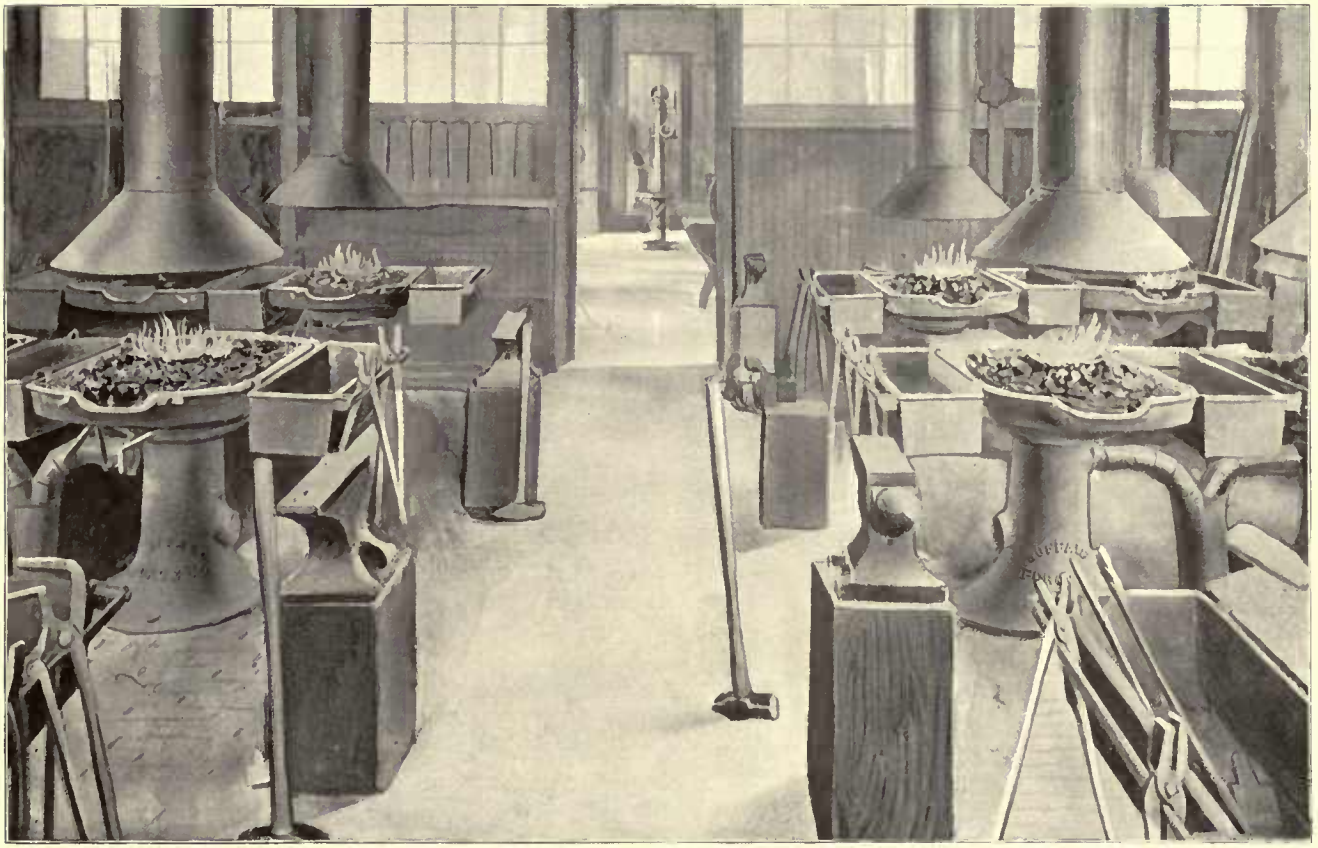
BUFFALO FORGE COMPANY EQUIPMENT.



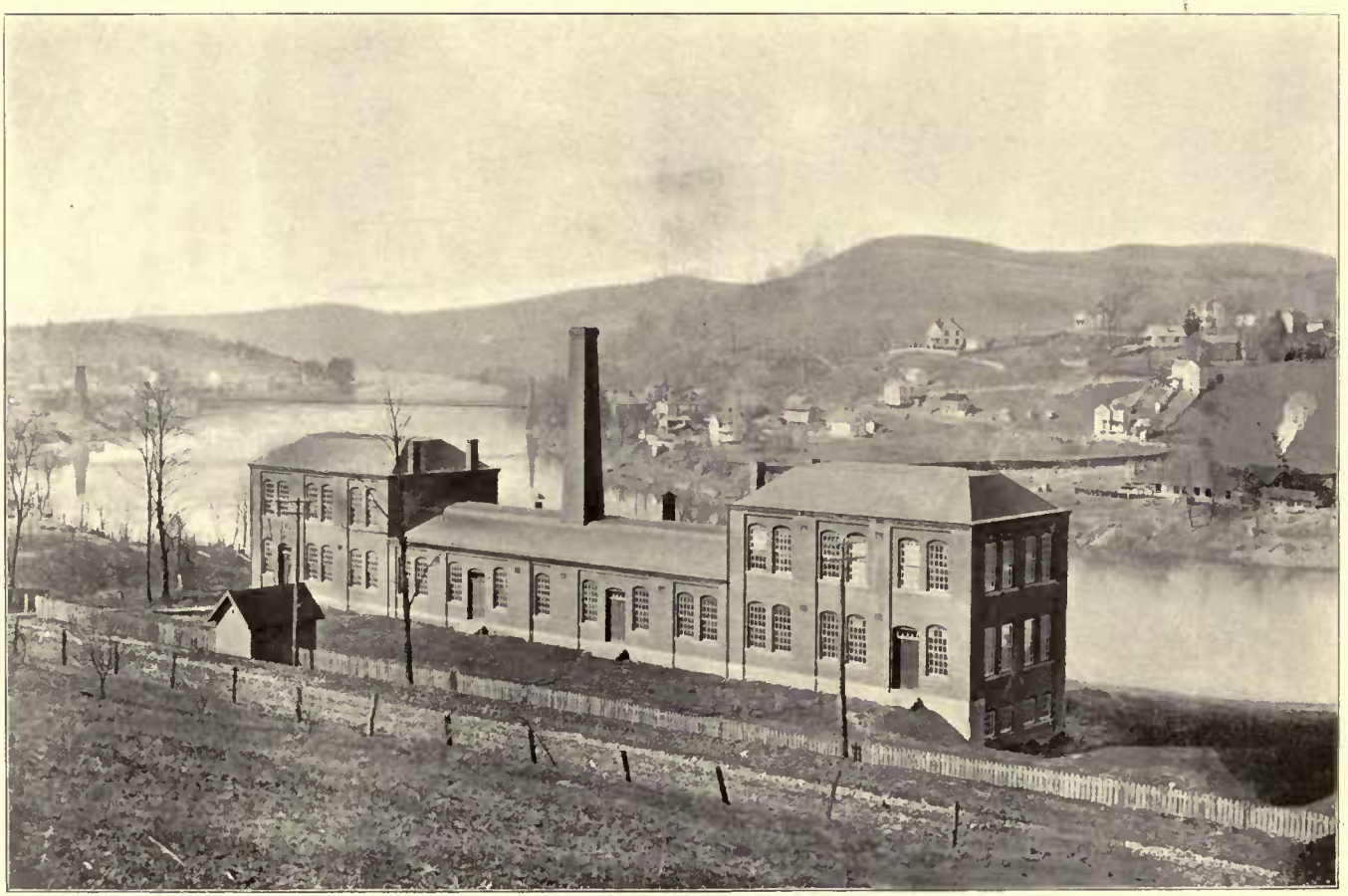
COLUMBIA UNIVERSITY, NEW YORK CITY, TEACHERS' COLLEGE.—FORGE SHOP INTERIOR.



BRANCH NORMAL COLLEGE, PINE BLUFF, ARK.—MECHANICAL BUILDING.



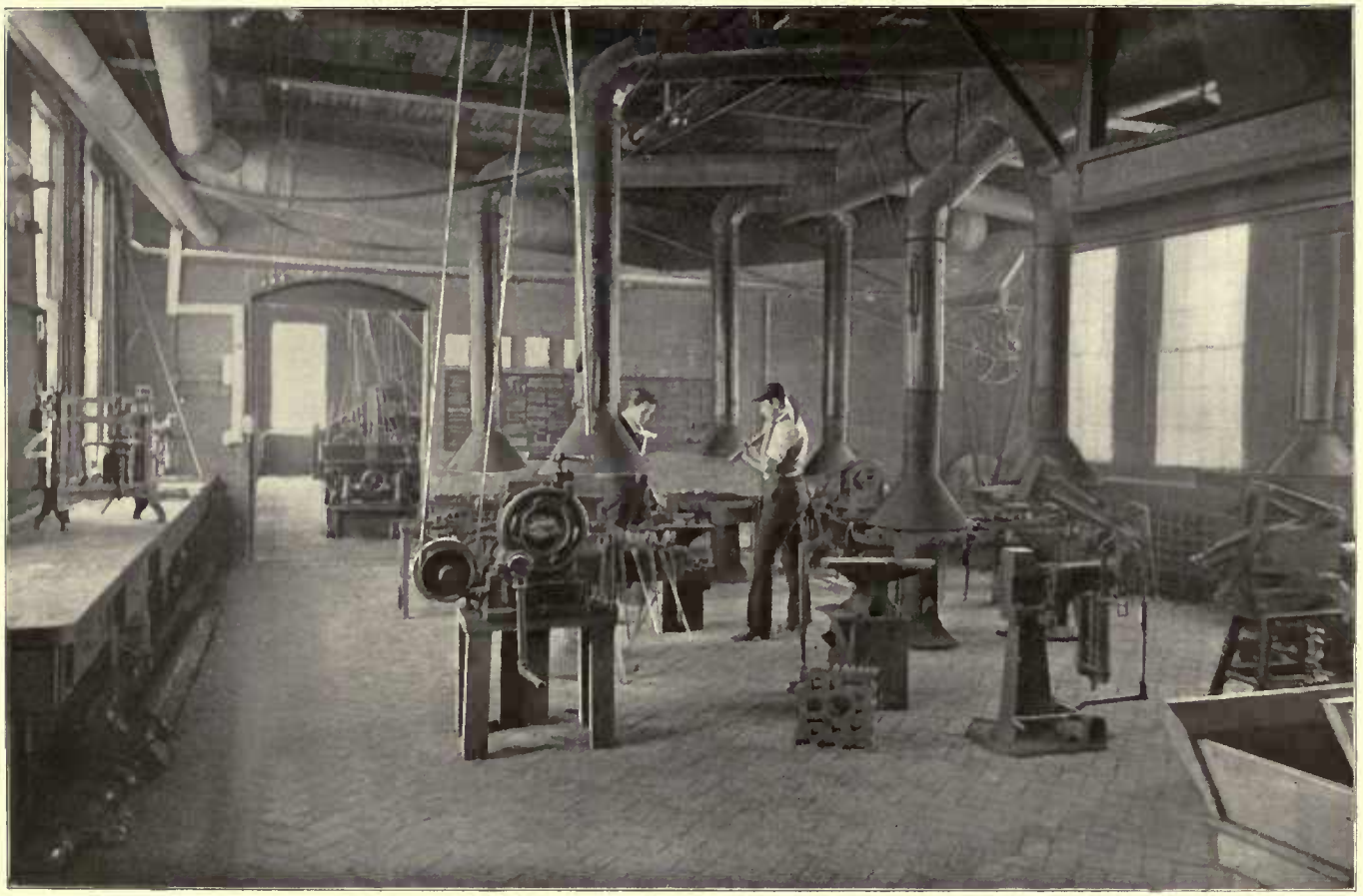
BRANCH NORMAL COLLEGE, PINE BLUFF, ARK.—FORGE SHOP INTERIOR.



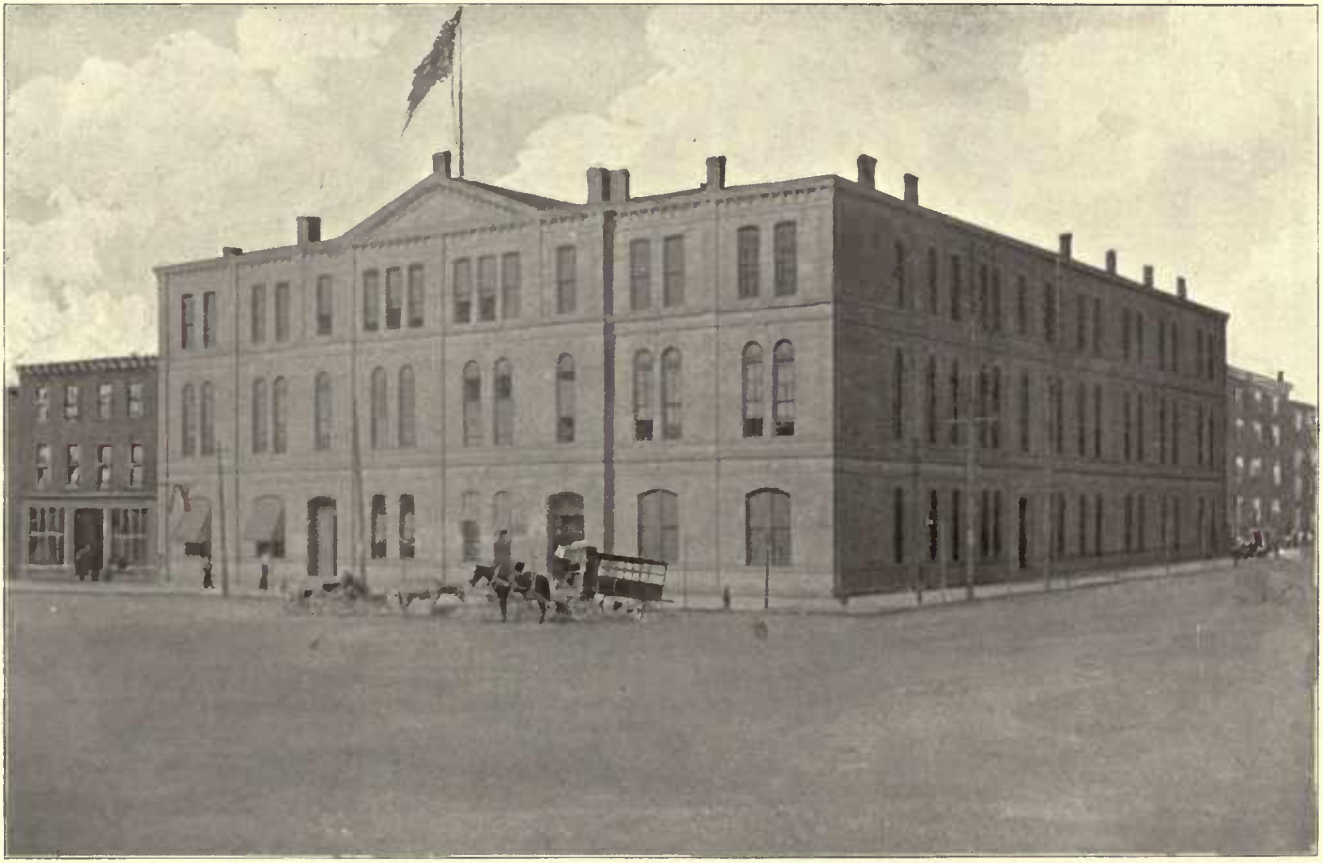
WEST VIRGINIA UNIVERSITY, MORGANTOWN, W. VA.—MECHANICAL BUILDING.

AMERICAN SCHOOLS OF MECHANICAL TECHNOLOGY,

BUFFALO FORGE COMPANY EQUIPMENT.



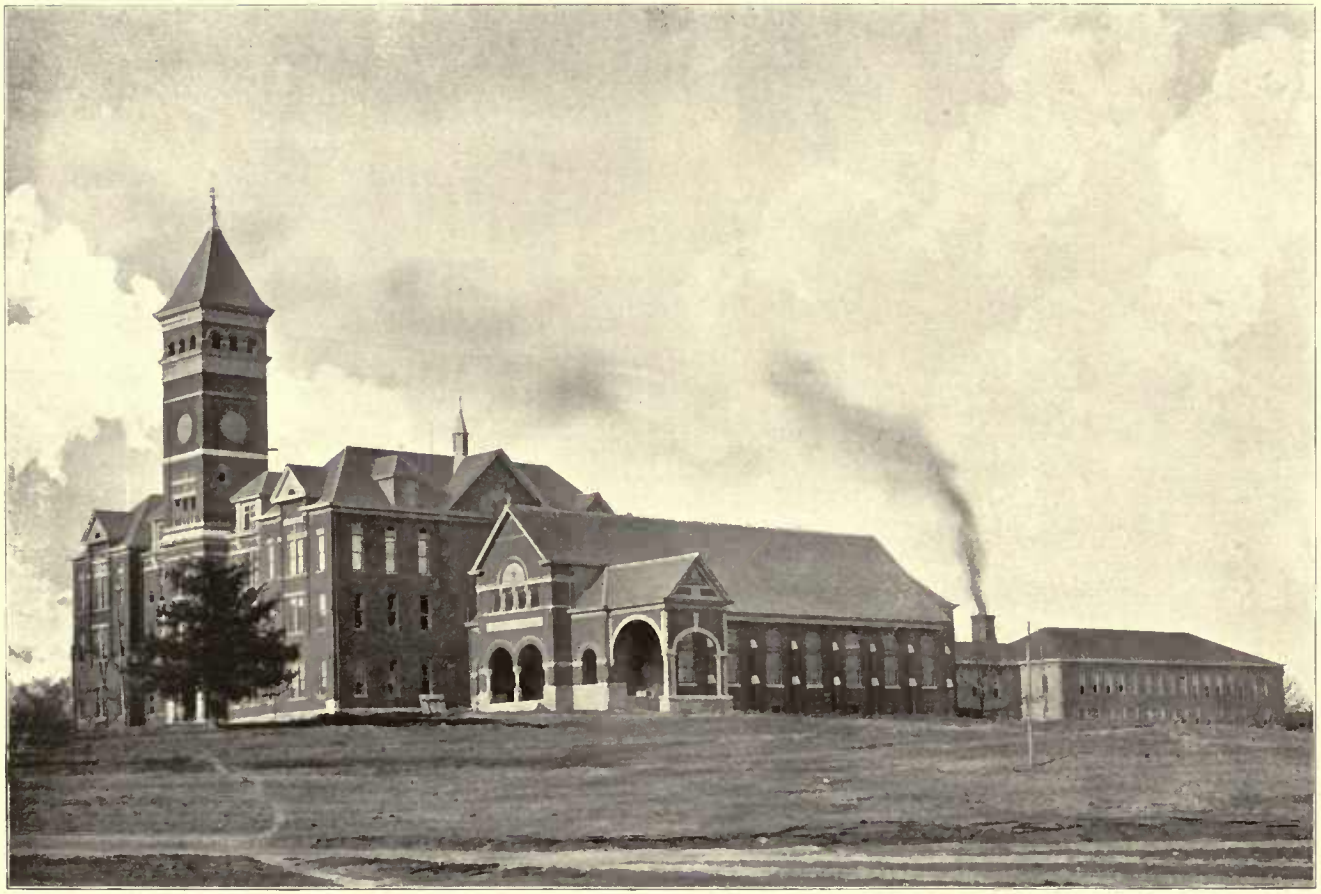
WEST VIRGINIA UNIVERSITY, MORGANTOWN, W. VA.—FORGE SHOP INTERIOR.



ALLEN MANUAL TRAINING SCHOOL, AUSTIN, TEX.—MECHANICAL BUILDING.



ALLEN MANUAL TRAINING SCHOOL, AUSTIN, TEX.—FORGE SHOP INTERIOR.



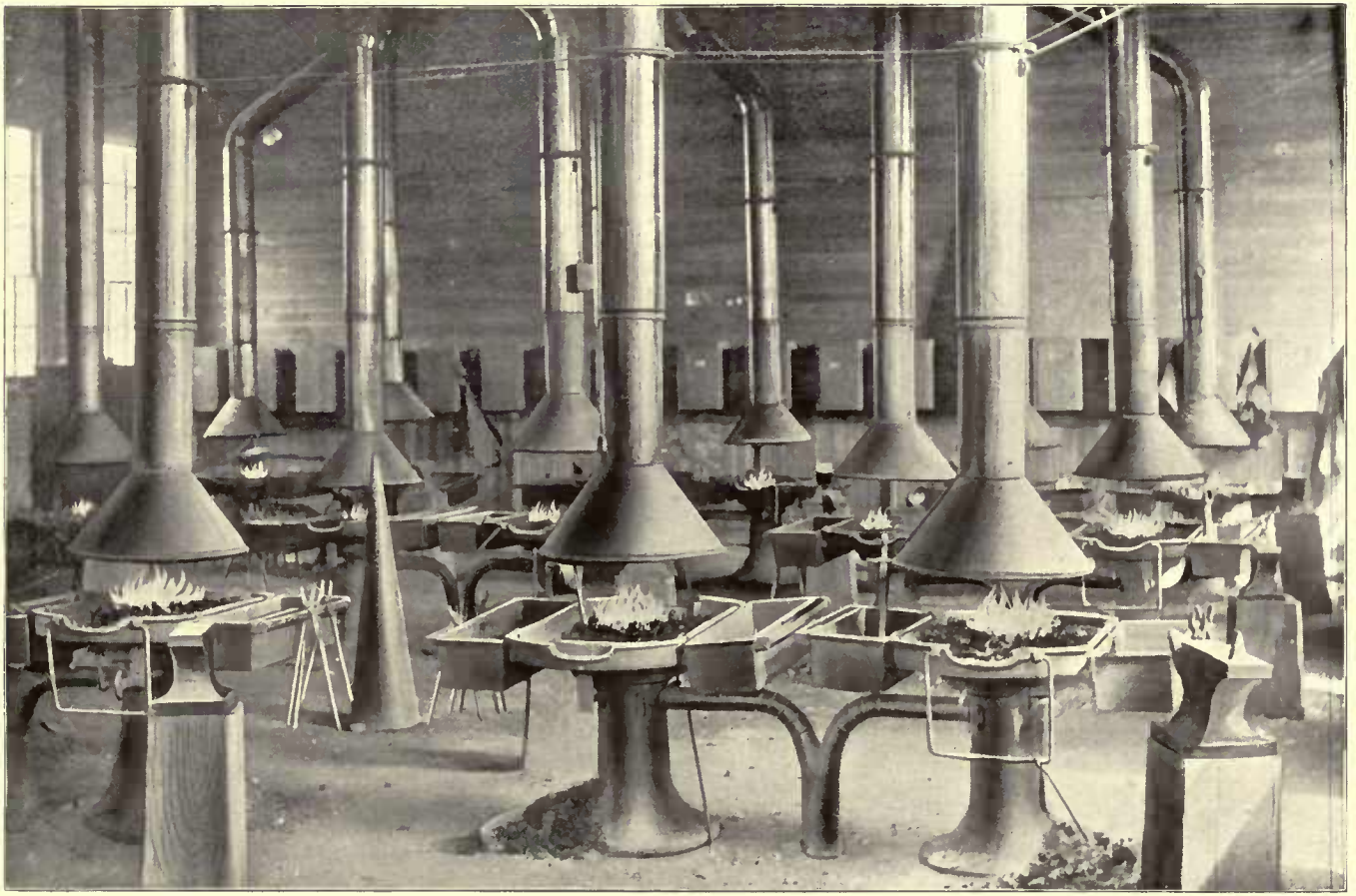
CLEMSON COLLEGE, CLEMSON COLLEGE P. O., S. C.—MAIN BUILDING AND BARRACKS.



CLEMSON COLLEGE, CLEMSON COLLEGE P. O., S. C.— FOUNDRY INTERIOR.



CLEMSON COLLEGE, CLEMSON COLLEGE P. O., S. C.—ENGINEERING AND MECHANIC ARTS BUILDING.



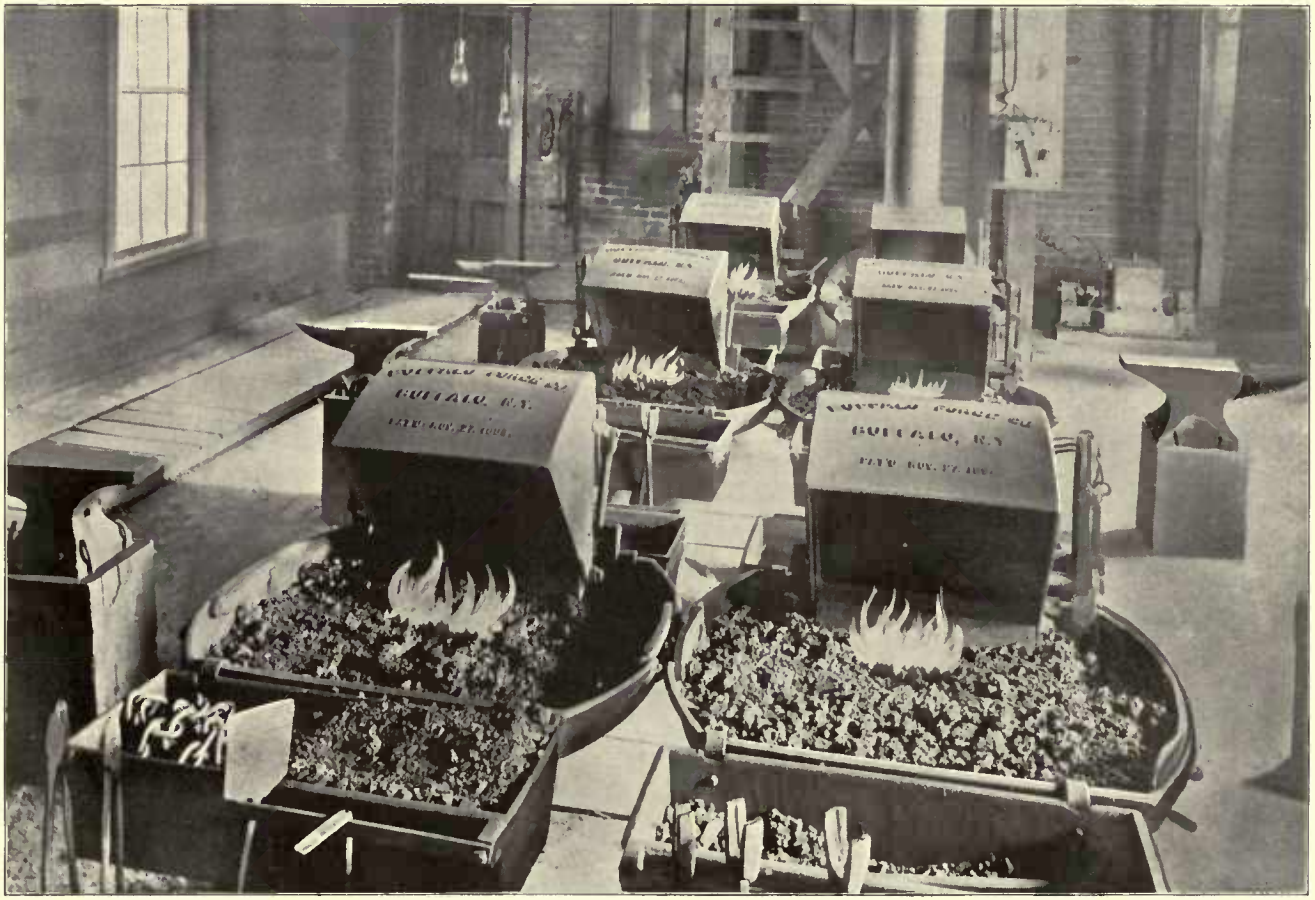
CLEMSON COLLEGE, CLEMSON COLLEGE P. O., S. C.—FORGE SHOP INTERIOR.



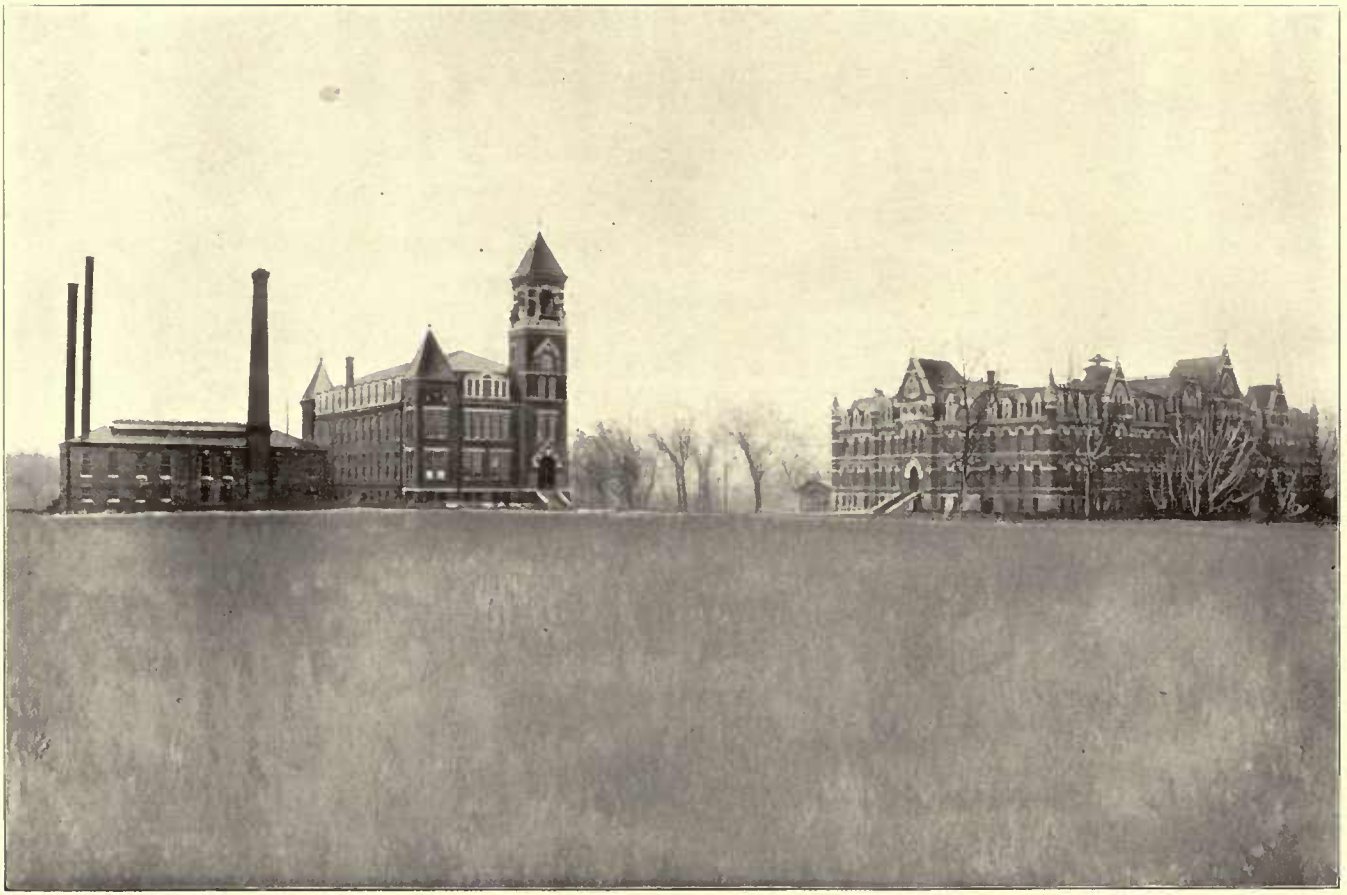
YOUNG MEN'S CHRISTIAN ASSOCIATION, DAYTON, OHIO.—MAIN BUILDING.

AMERICAN SCHOOLS OF MECHANICAL TECHNOLOGY,

BUFFALO FORGE COMPANY EQUIPMENT.



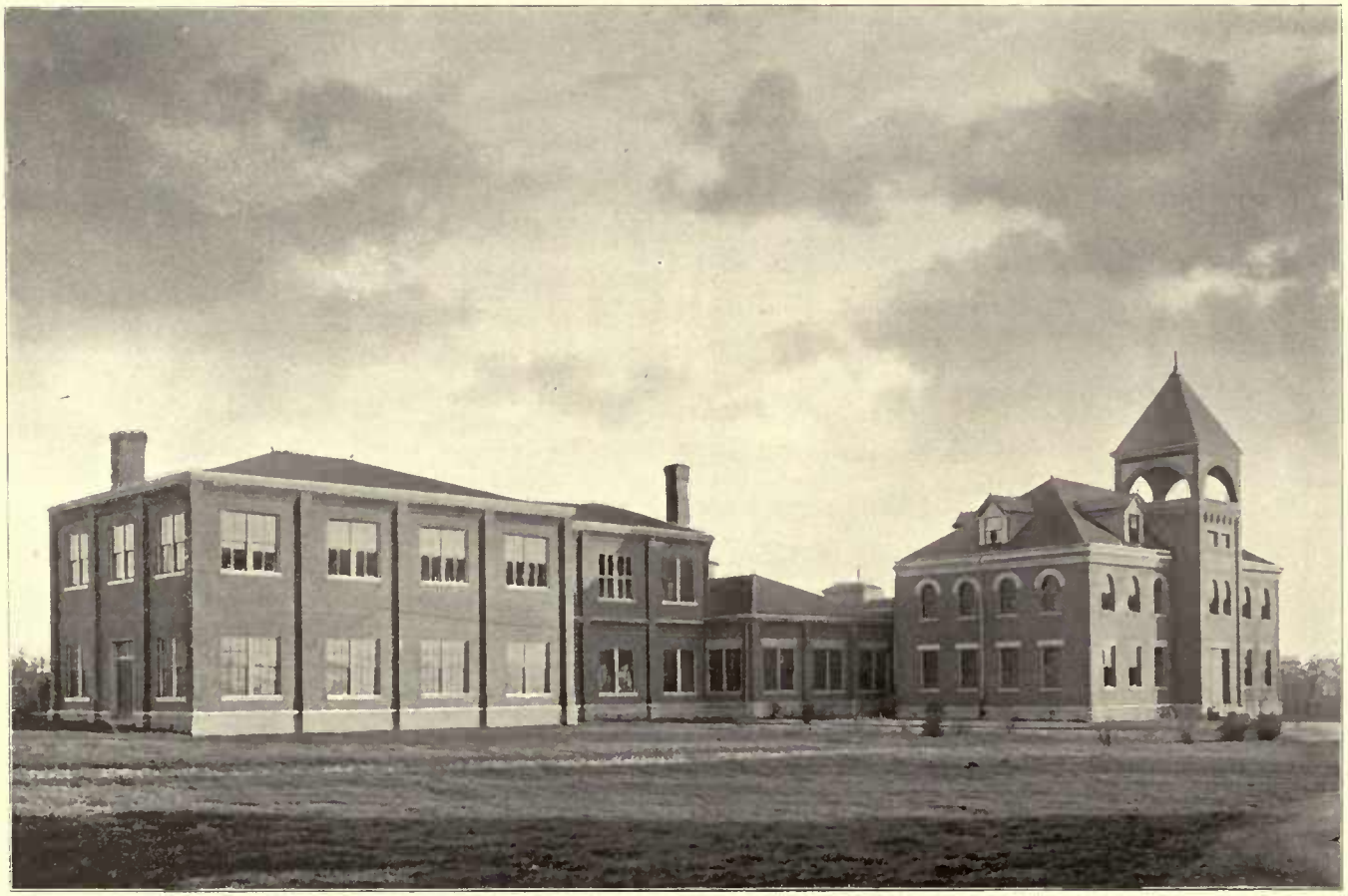
YOUNG MEN'S CHRISTIAN ASSOCIATION, DAYTON, OHIO.—FORGE SHOP INTERIOR.



MILLER MANUAL LABOR SCHOOL, CROZET, VA.—ENGINEERING AND MAIN BUILDINGS.



MILLER MANUAL LABOR SCHOOL, CROZET, VA.—FORGE SHOP INTERIOR.



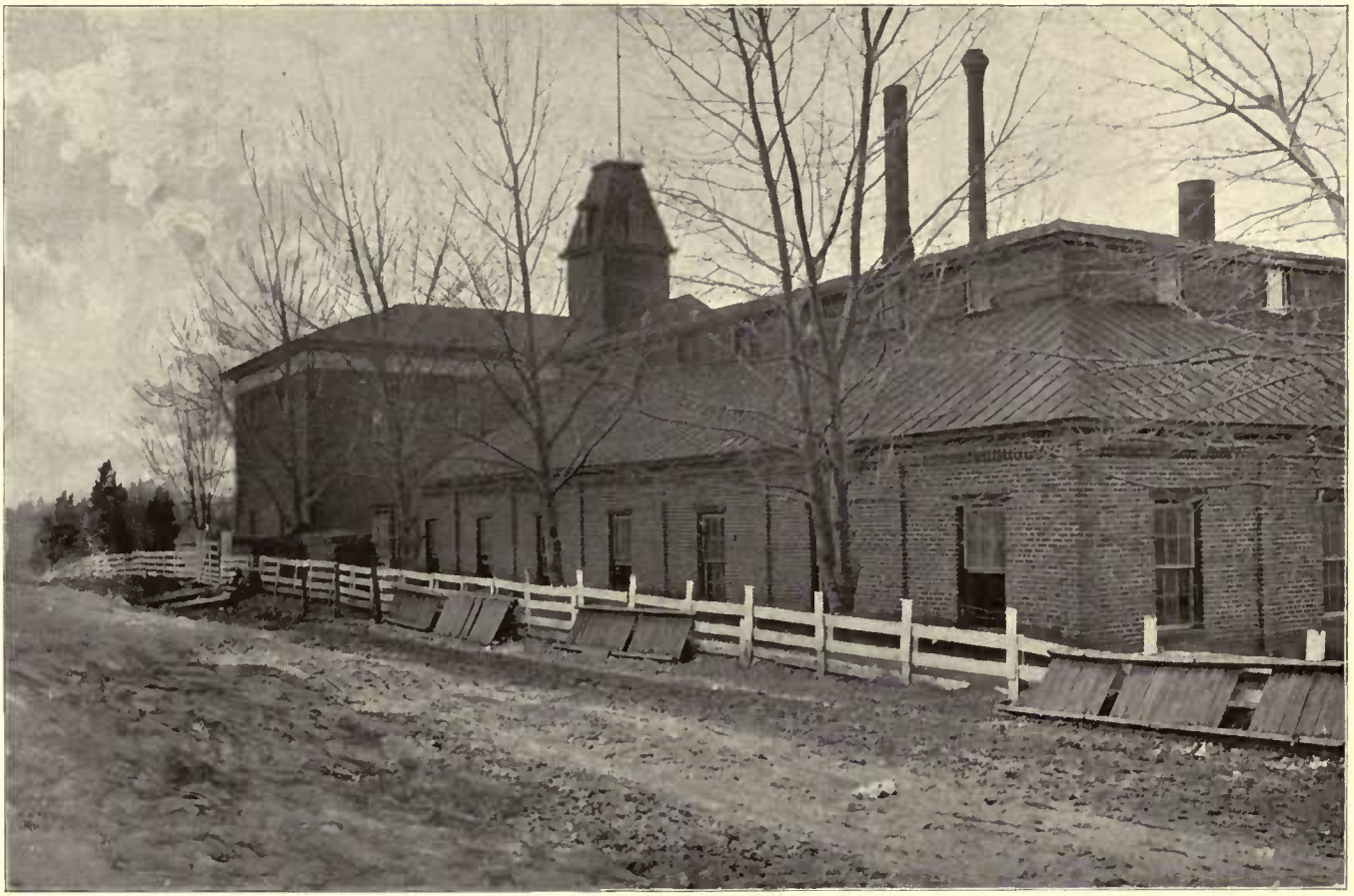
STATE COLLEGE OF KENTUCKY, LEXINGTON, KY.—MECHANICAL HALL.

AMERICAN SCHOOLS OF MECHANICAL TECHNOLOGY,

BUFFALO FORGE COMPANY EQUIPMENT.



STATE COLLEGE OF KENTUCKY, LEXINGTON, KY., SCHOOL OF MECHANICAL ENGINEERING— FORGE SHOP INTERIOR.



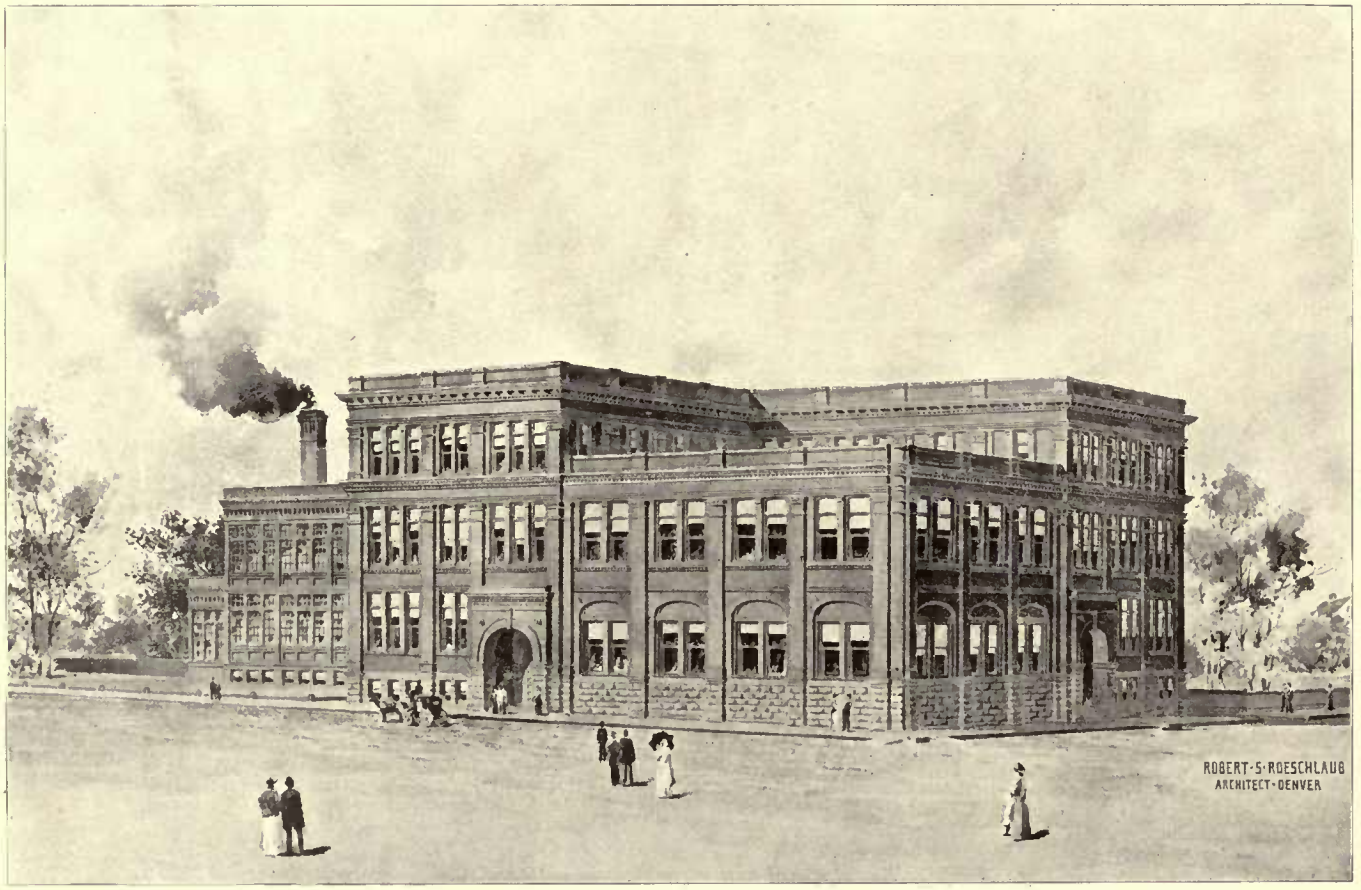
VIRGINIA POLYTECHNIC INSTITUTE, BLACKSBURG, VA.—MECHANICAL BUILDING.

AMERICAN SCHOOLS OF MECHANICAL TECHNOLOGY,

BUFFALO FORGE COMPANY EQUIPMENT.



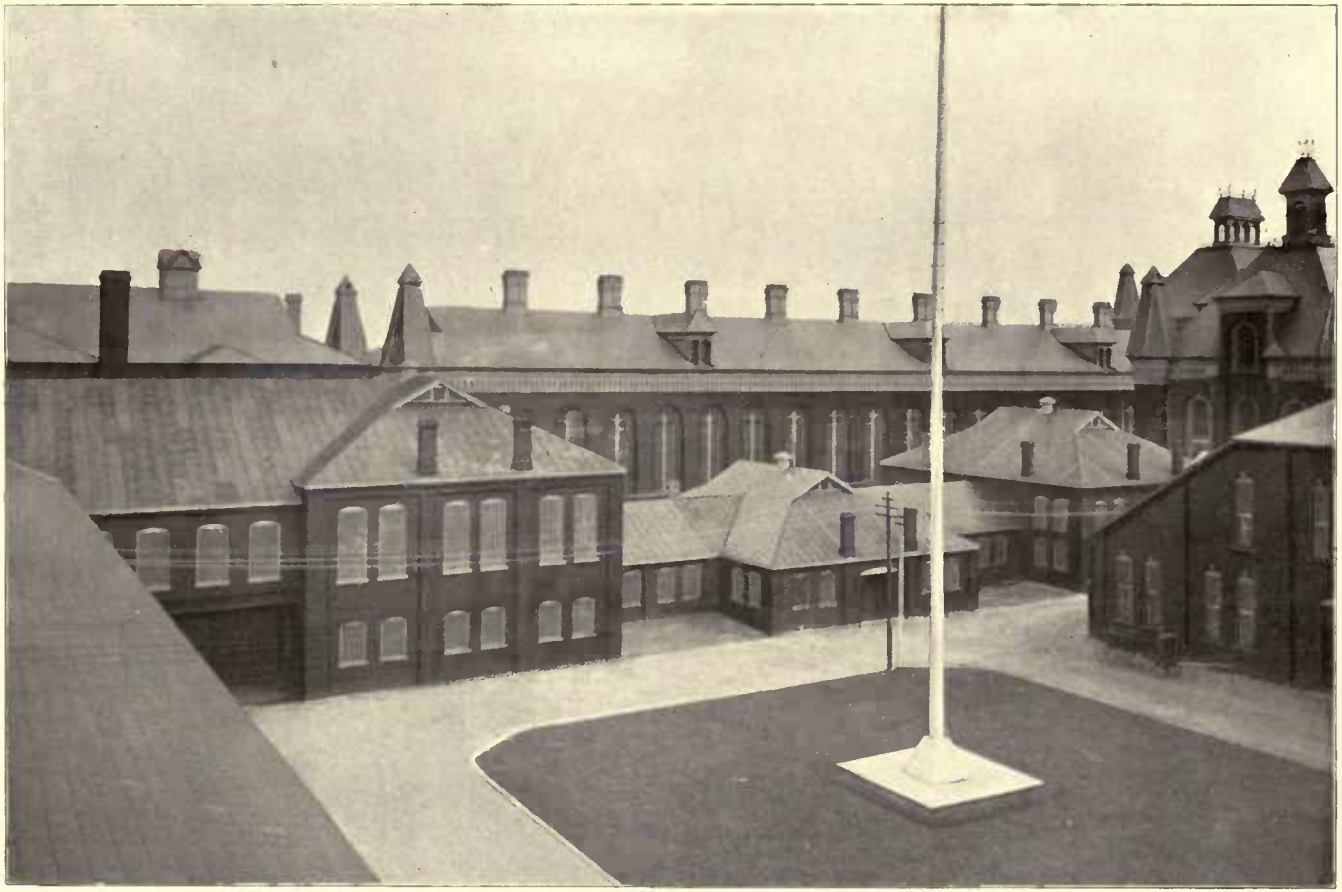
VIRGINIA POLYTECHNIC INSTITUTE, BLACKSBURG, VA.—FORGE SHOP INTERIOR.



MANUAL TRAINING HIGH SCHOOL, DENVER, COL.—MECHANICAL BUILDING.



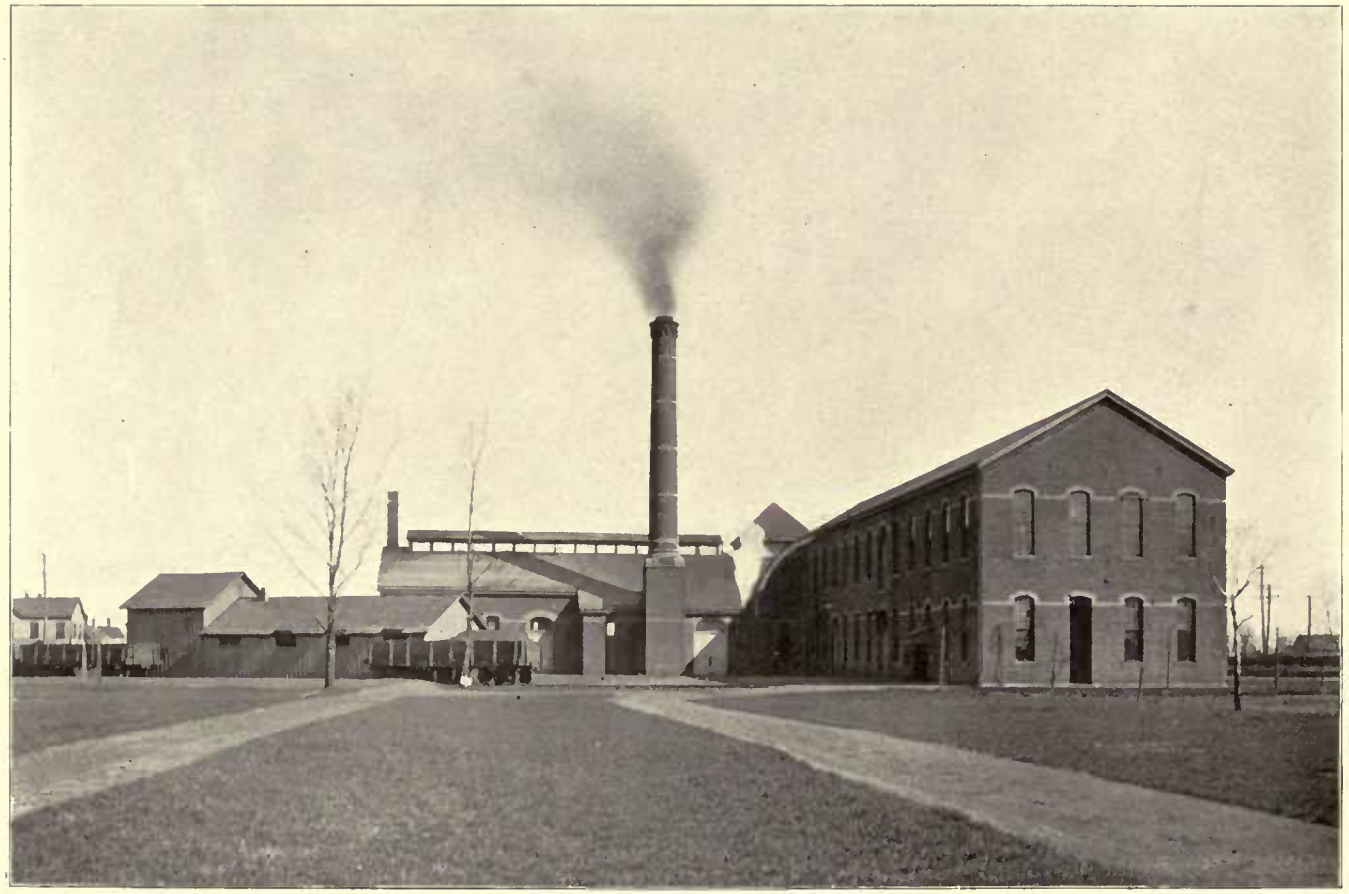
MANUAL TRAINING HIGH SCHOOL, DENVER, COL.—FORGE SHOP INTERIOR.



NEW YORK STATE REFORMATORY, ELMIRA, N. Y.—MECHANICAL BUILDING.



NEW YORK STATE REFORMATORY, ELMIRA, N. Y.—FORGE SHOP INTERIOR.



ROSE POLYTECHNIC INSTITUTE, TERRE HAUTE, IND.—MACHINE AND BLACKSMITH SHOPS.

AMERICAN SCHOOLS OF MECHANICAL TECHNOLOGY,

BUFFALO FORGE COMPANY EQUIPMENT.



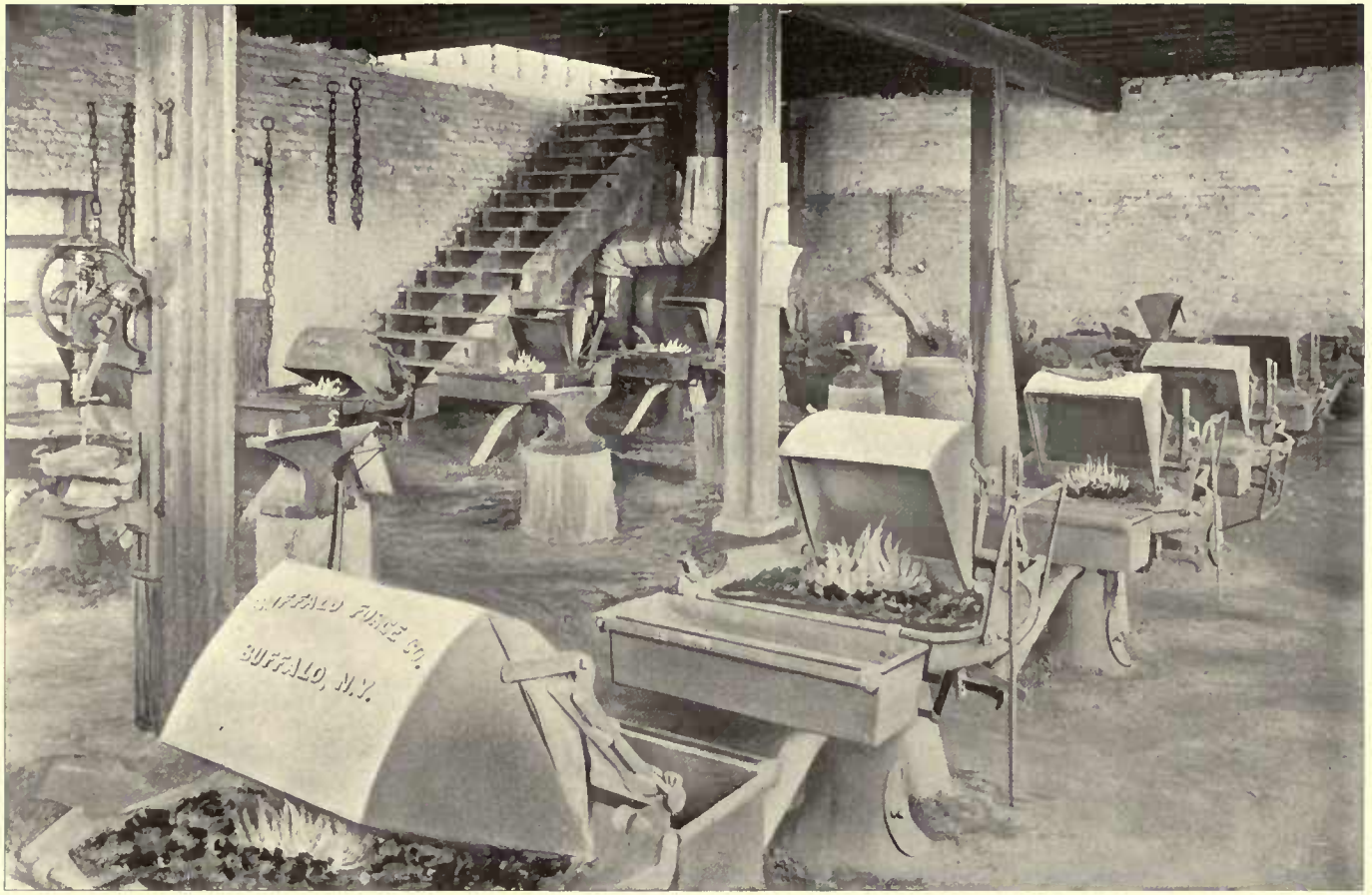
ROSE POLYTECHNIC INSTITUTE, TERRE HAUTE, IND.—FORGE SHOP INTERIOR.



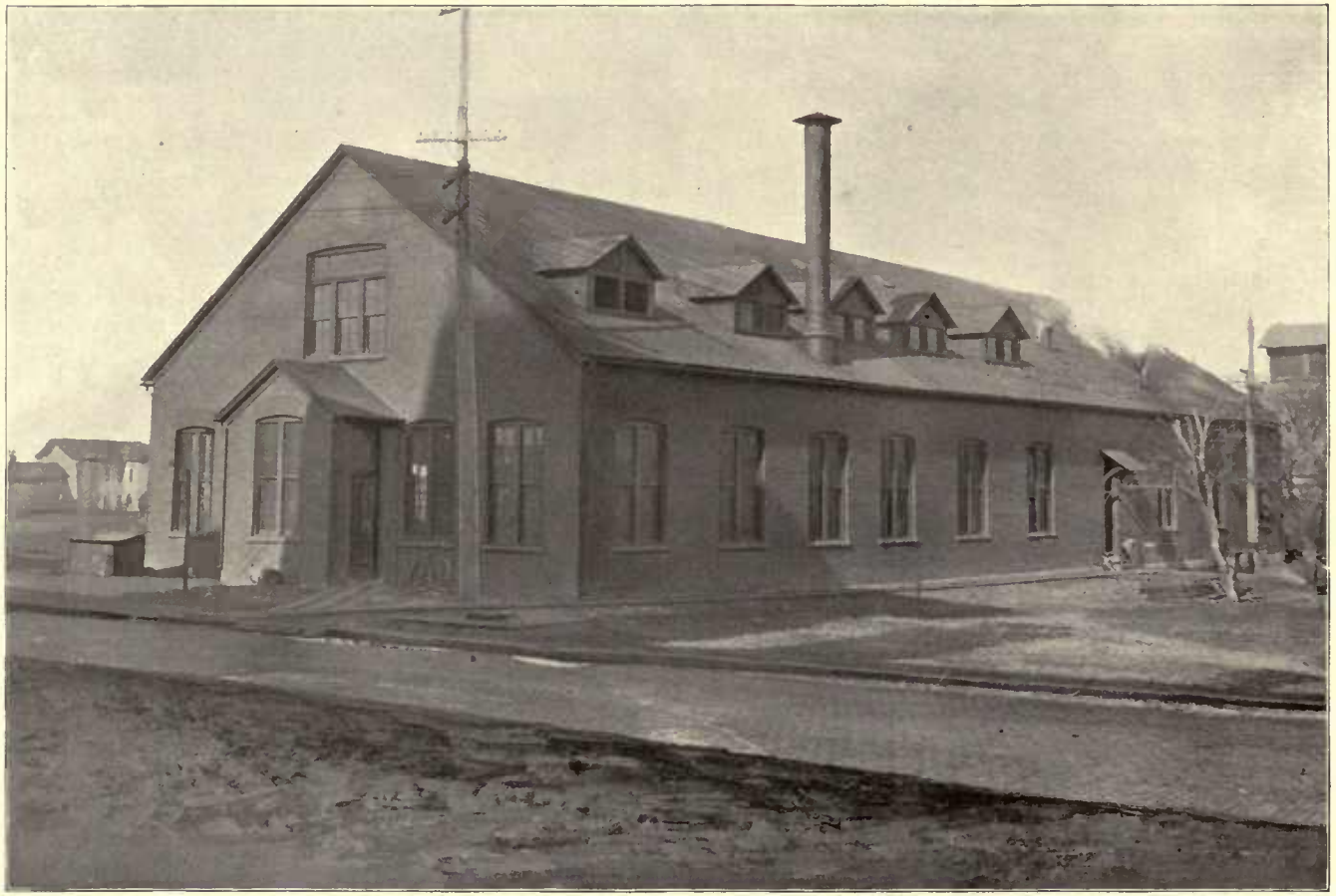
AGRICULTURAL AND MECHANICAL COLLEGE FOR THE COLORED, GREENSBORO, N. C.—MECHANICAL BUILDING.

AMERICAN SCHOOLS OF MECHANICAL TECHNOLOGY,

BUFFALO FORGE COMPANY EQUIPMENT.

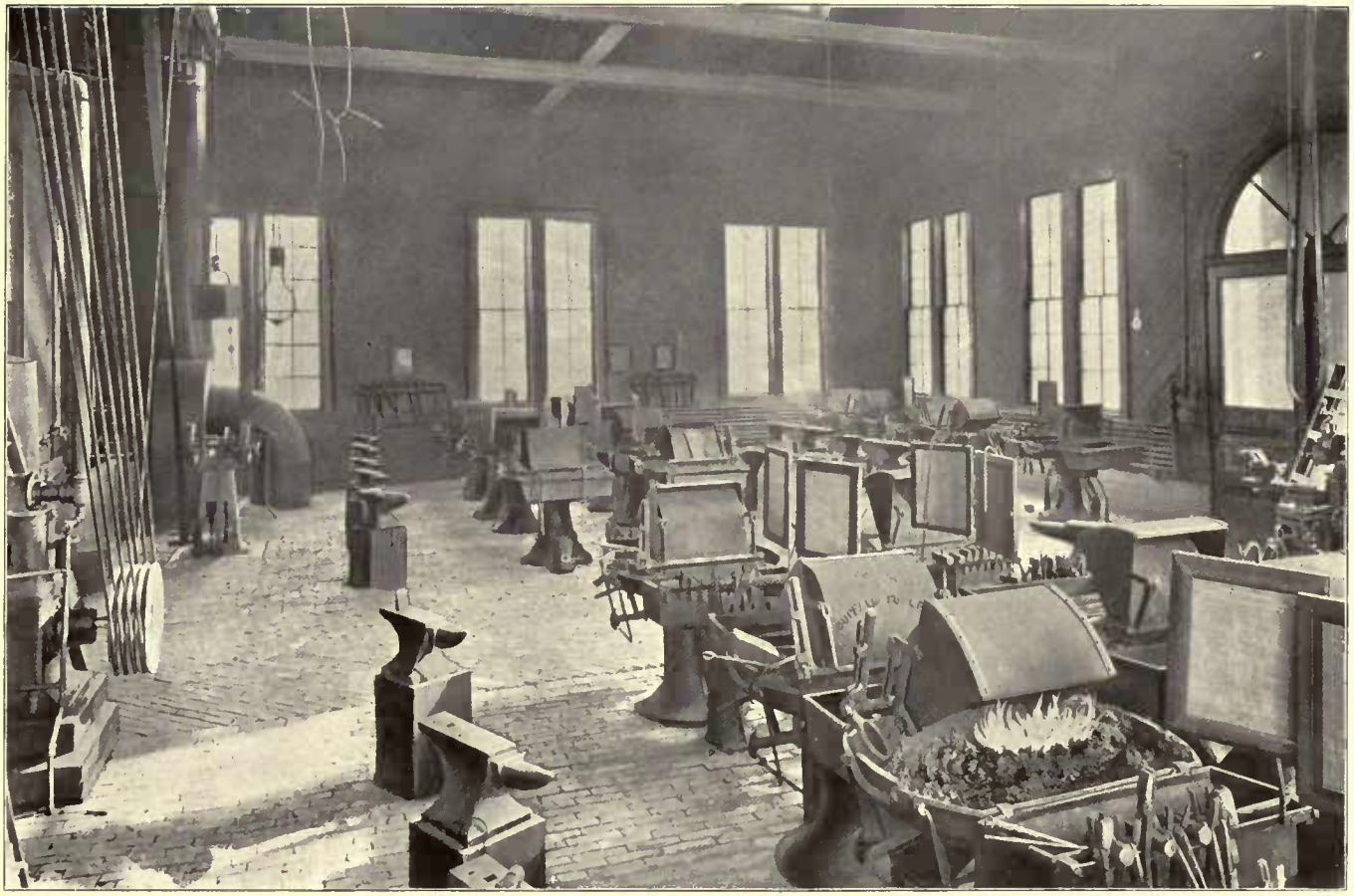


AGRICULTURAL AND MECHANICAL COLLEGE FOR THE COLORED, GREENSBORO, N. C.—FORGE SHOP INTERIOR.

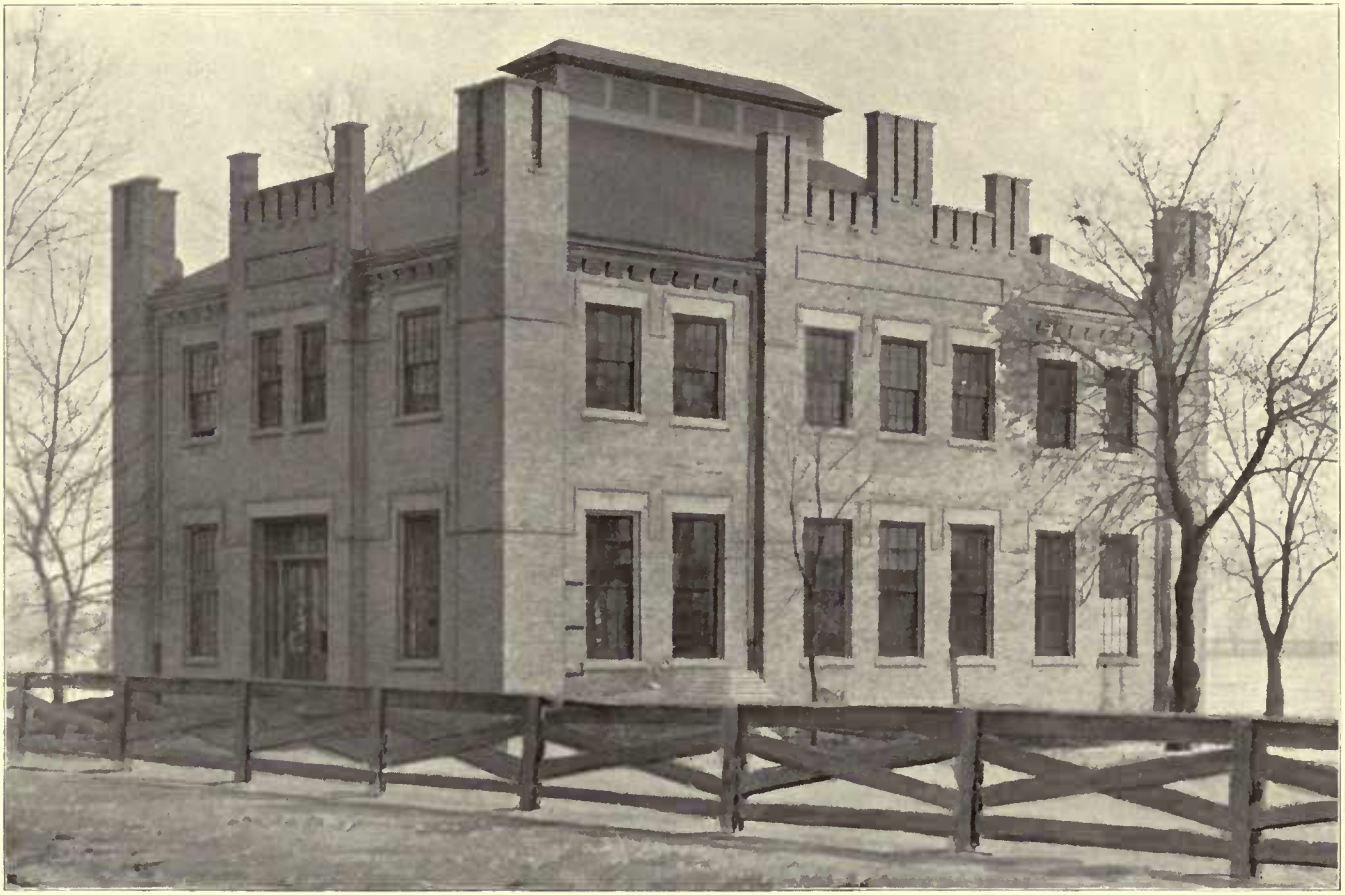


UNIVERSITY OF NEBRASKA, LINCOLN, NEB.—MECHANICAL BUILDING.

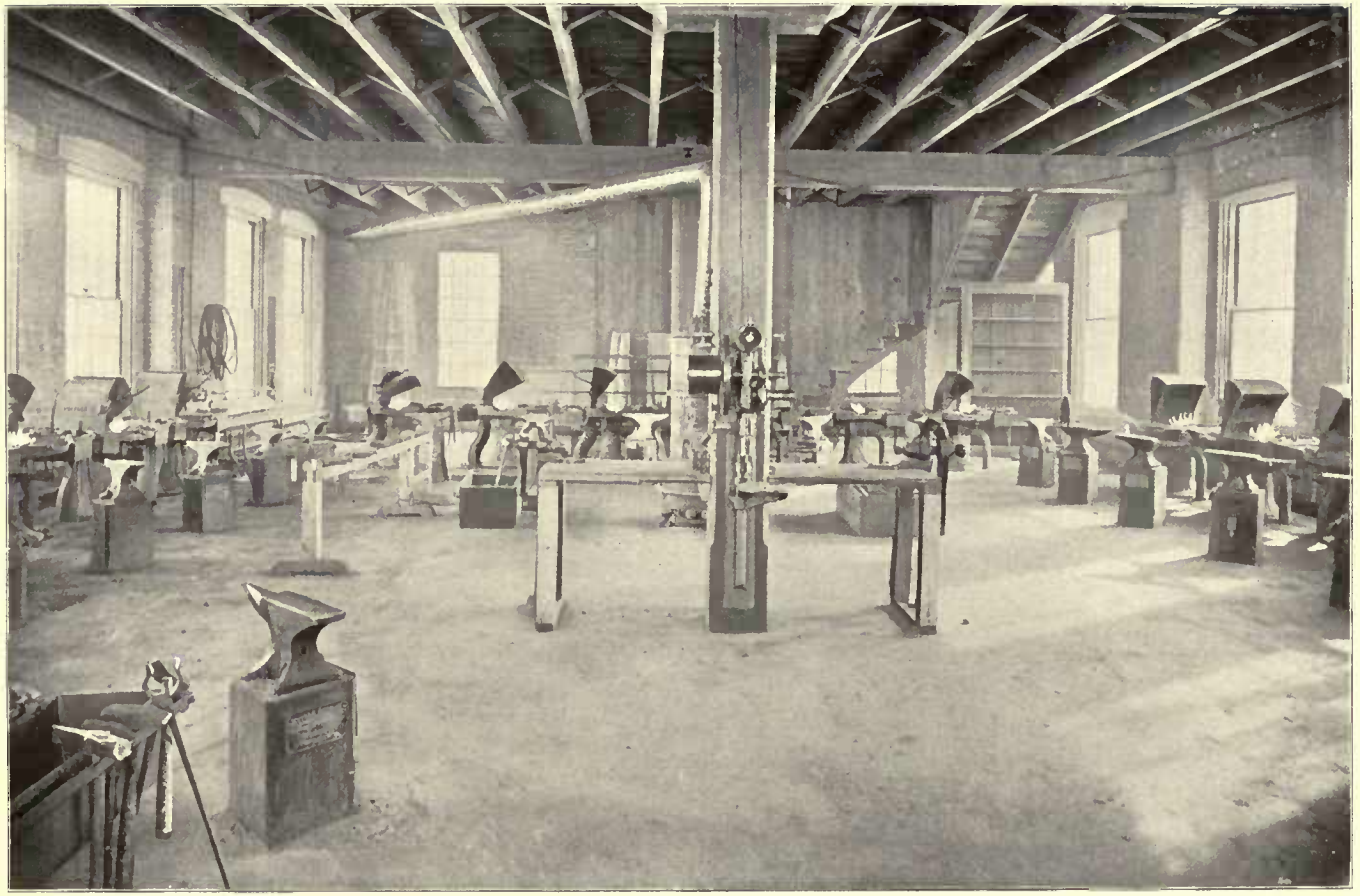
LIBRARY OF THE UNIVERSITY OF CALIFORNIA



UNIVERSITY OF NEBRASKA, LINCOLN, NEB.—FORGE SHOP INTERIOR.



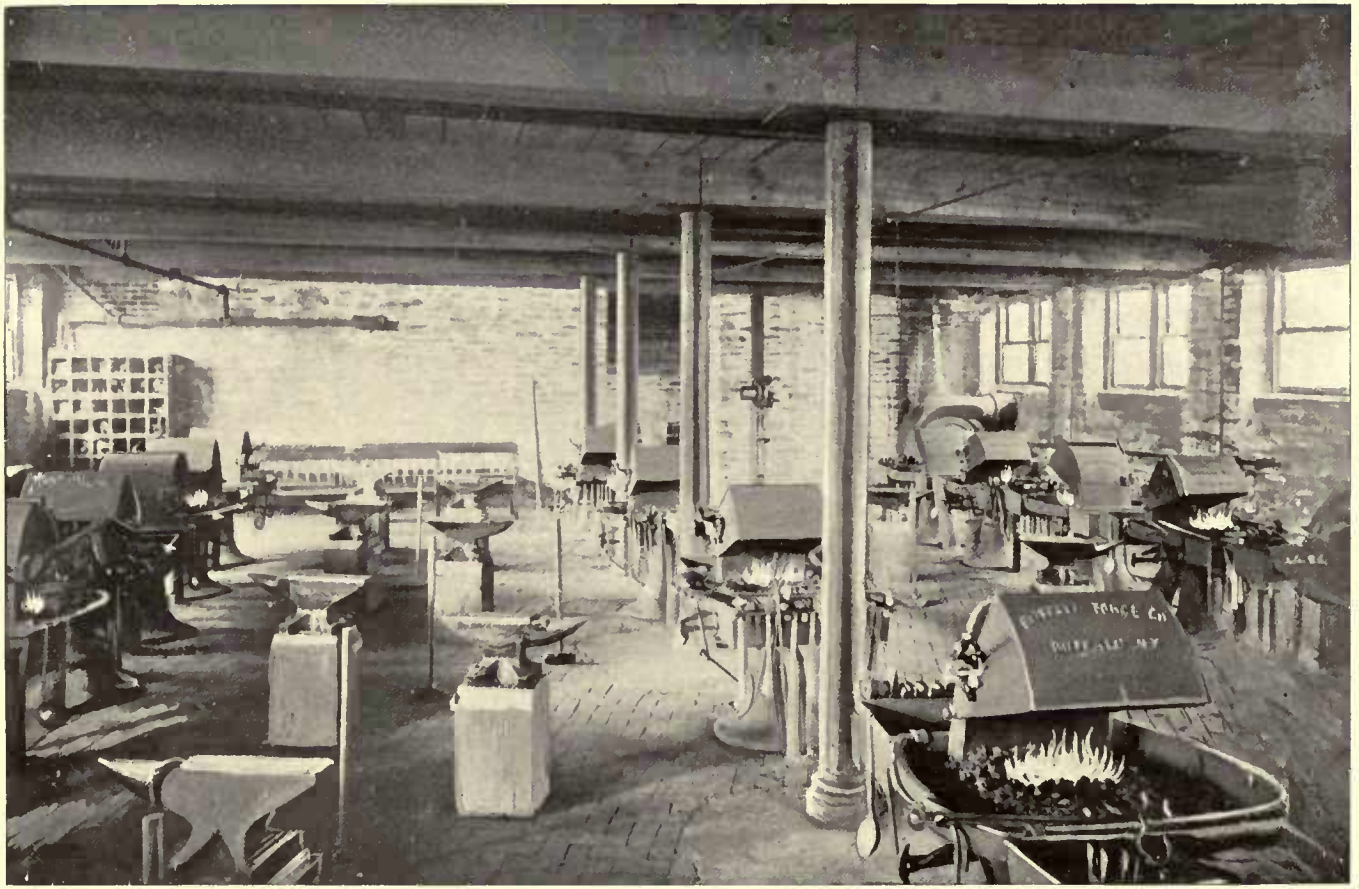
ILLINOIS SOLDIERS ORPHANS' HOME, NORMAL, ILL.—MECHANICAL BUILDING.



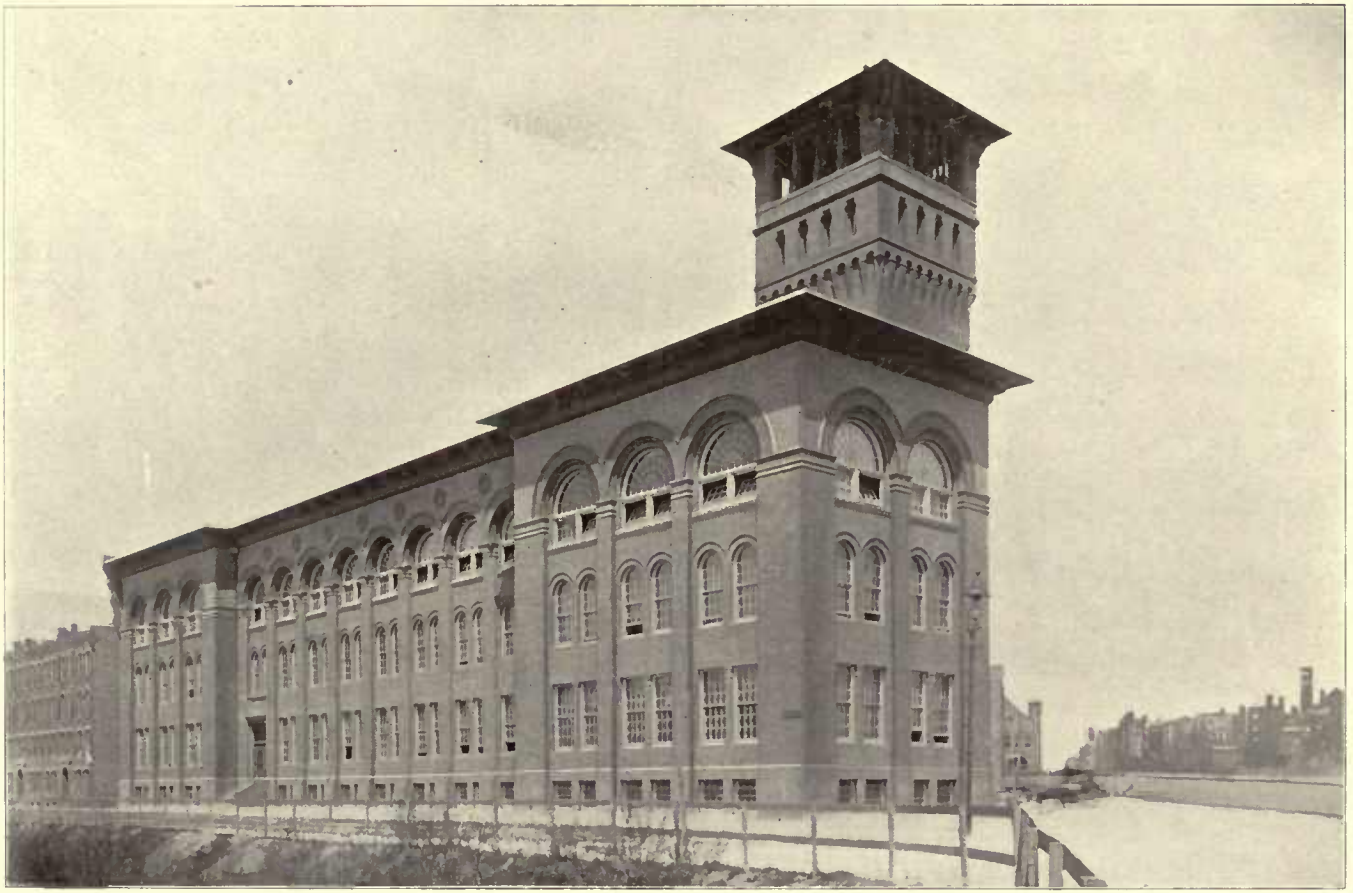
ILLINOIS SOLDIERS ORPHANS' HOME, NORMAL, ILL.—FORGE SHOP INTERIOR.



BARLOW INDUSTRIAL SCHOOL, BINGHAMTON, N. Y.—SMITH SHOP BUILDING.



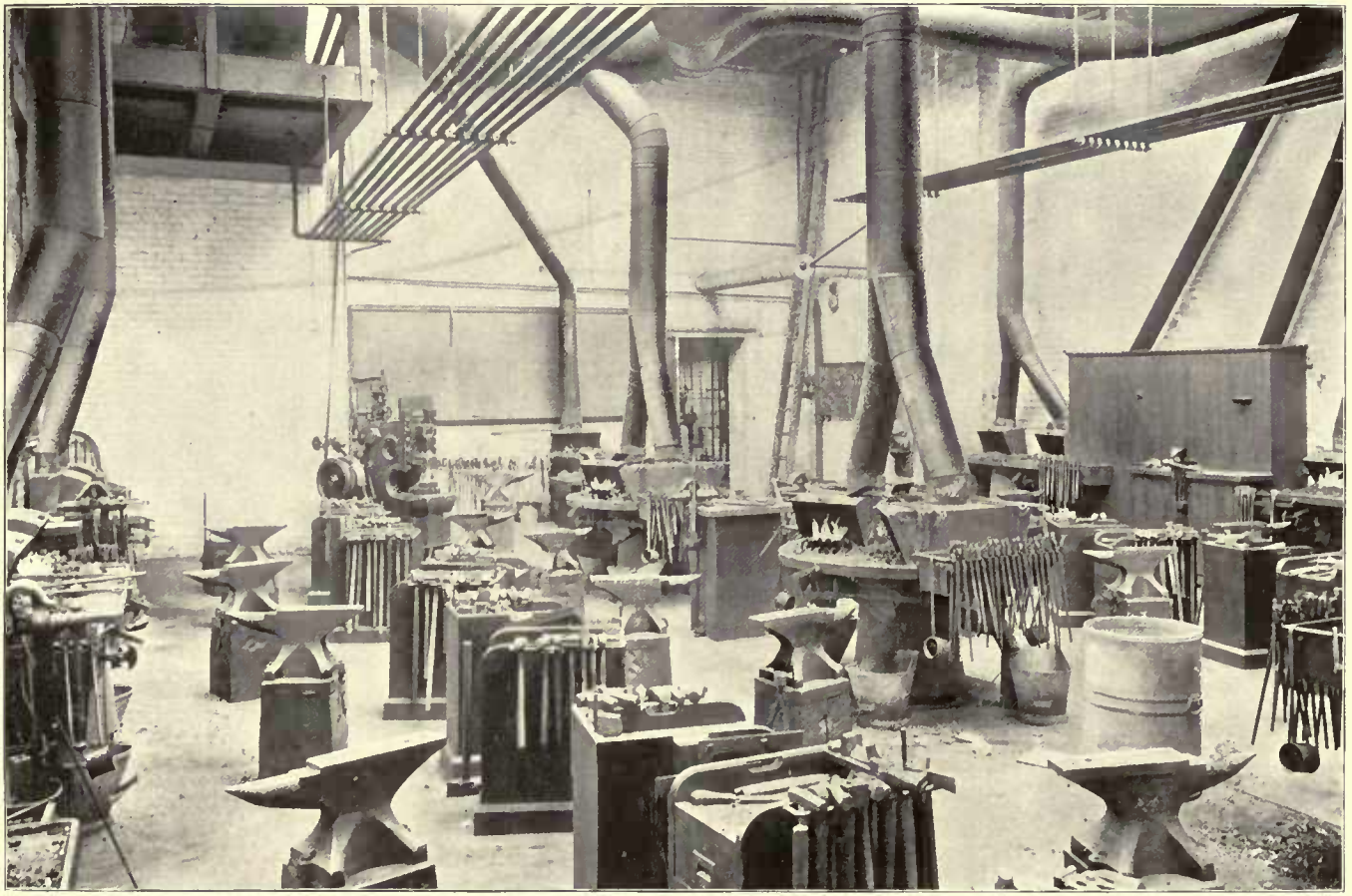
BARLOW INDUSTRIAL SCHOOL, BINGHAMTON, N. Y.—FORGE SHOP INTERIOR.



THE MECHANIC ARTS HIGH SCHOOL, BOSTON, MASS.—MECHANICAL BUILDING.

AMERICAN SCHOOLS OF MECHANICAL TECHNOLOGY,

BUFFALO FORGE COMPANY EQUIPMENT.



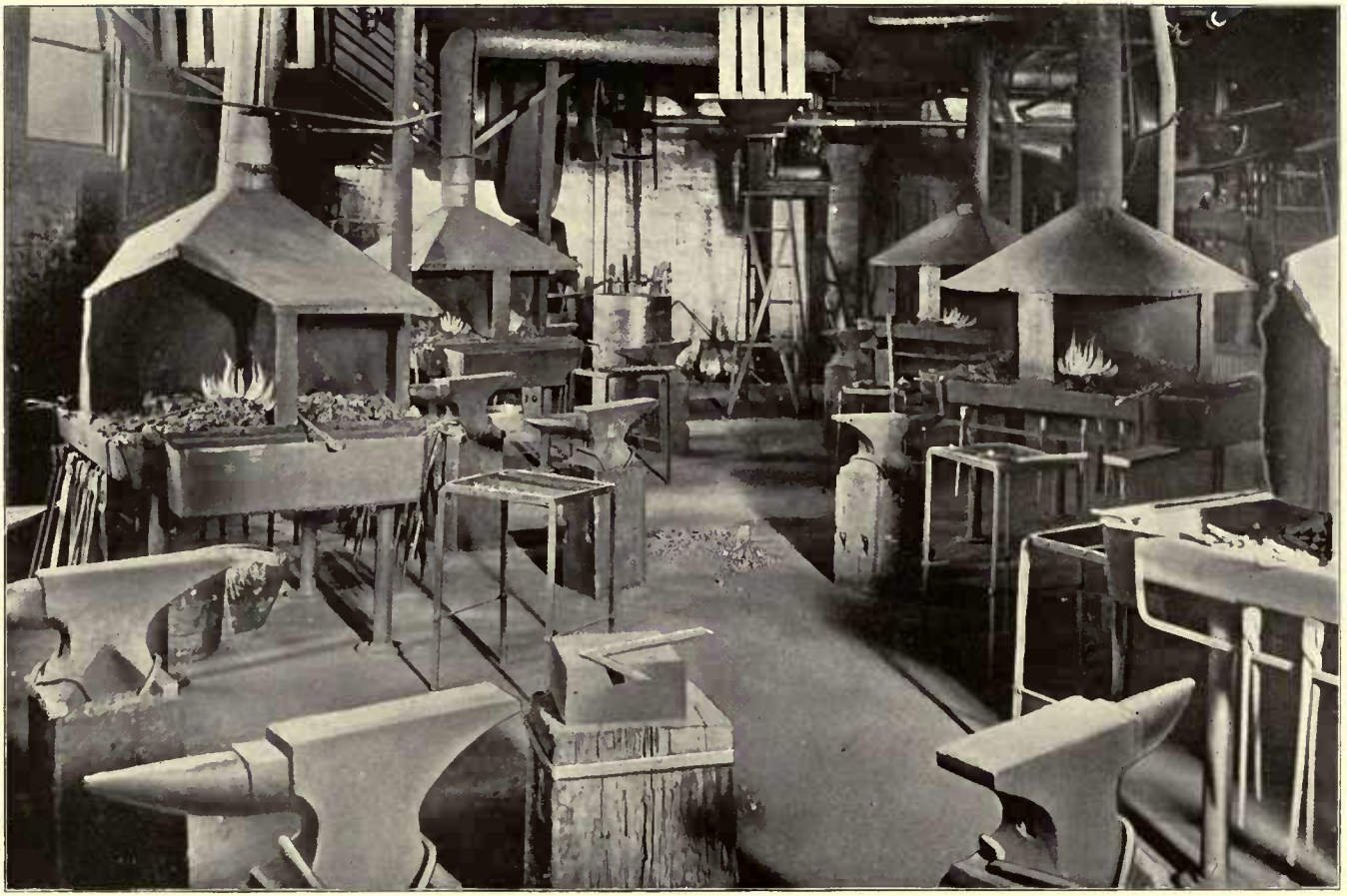
THE MECHANIC ARTS HIGH SCHOOL, BOSTON, MASS.—FORGE SHOP INTERIOR.



CHICAGO MANUAL TRAINING SCHOOL, CHICAGO, ILL.— MAIN BUILDING.

AMERICAN SCHOOLS OF MECHANICAL TECHNOLOGY,

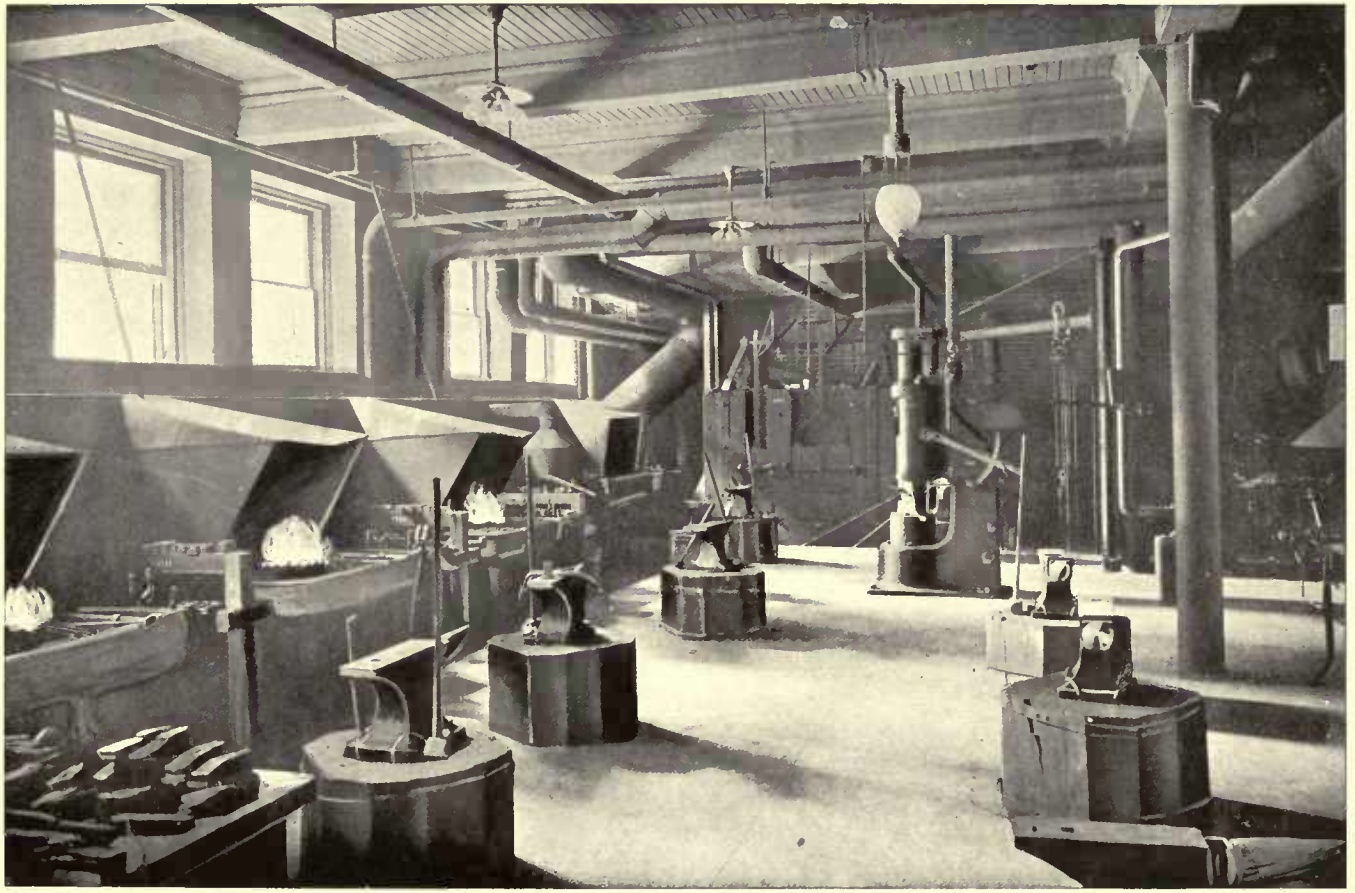
BUFFALO FORGE COMPANY EQUIPMENT.



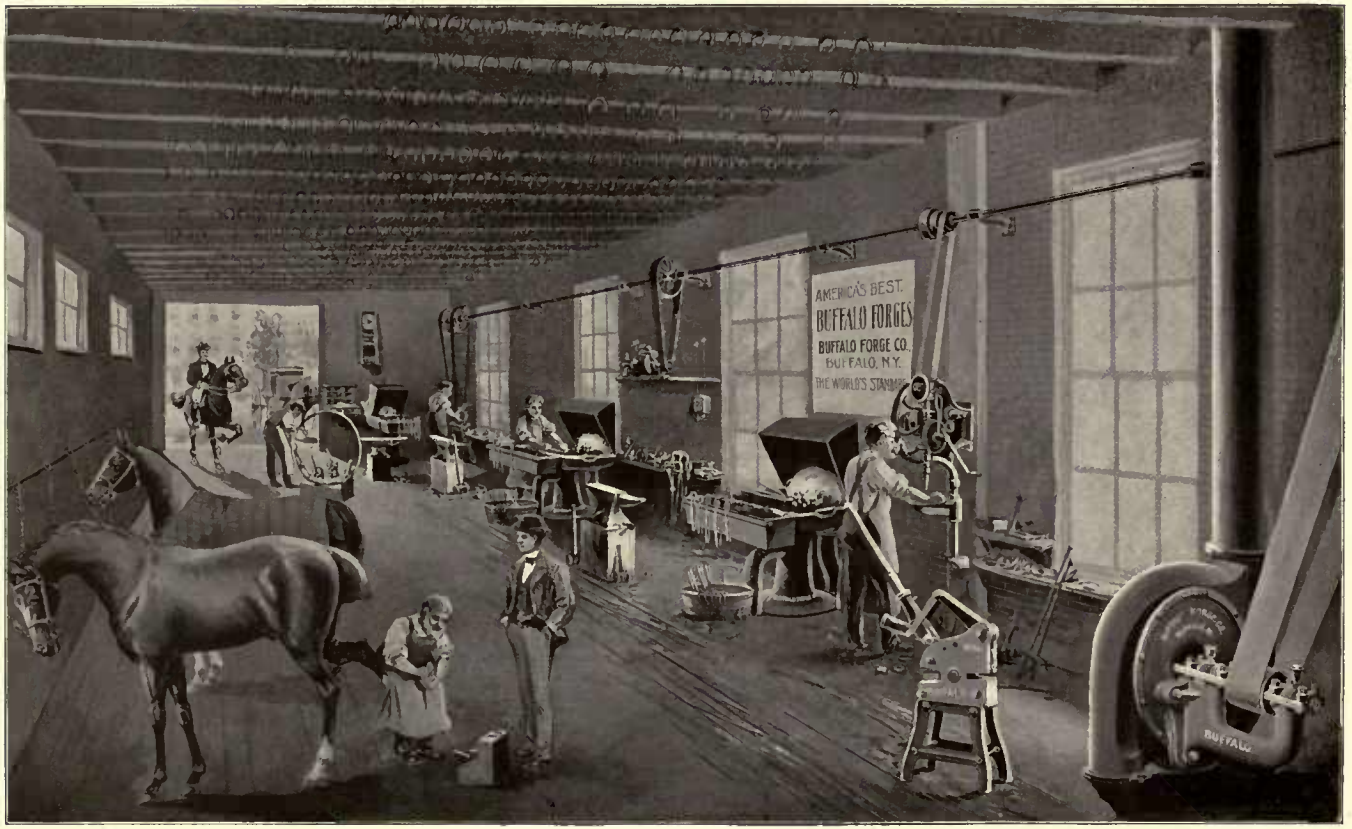
CHICAGO MANUAL TRAINING SCHOOL, CHICAGO, ILL.—FORGE SHOP INTERIOR.



ARMOUR INSTITUTE OF TECHNOLOGY, CHICAGO, ILL.—MISSION AT LEFT, MECHANICAL BUILDING AT RIGHT.



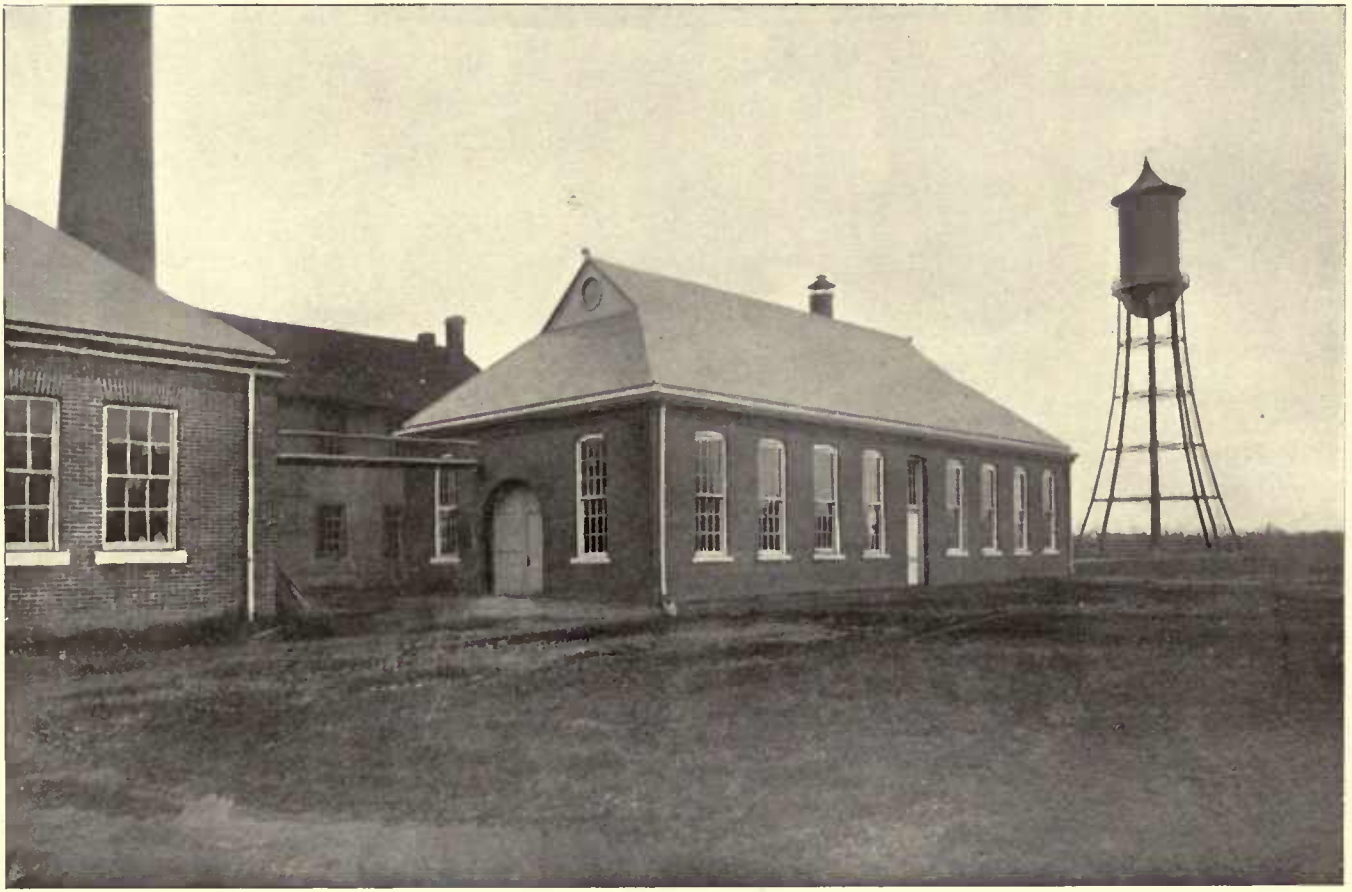
ARMOUR INSTITUTE OF TECHNOLOGY, CHICAGO, ILL.—FORGE SHOP INTERIOR.



INTERIOR OF A MODEL BLACKSMITH SHOP AT BUFFALO, N. Y.



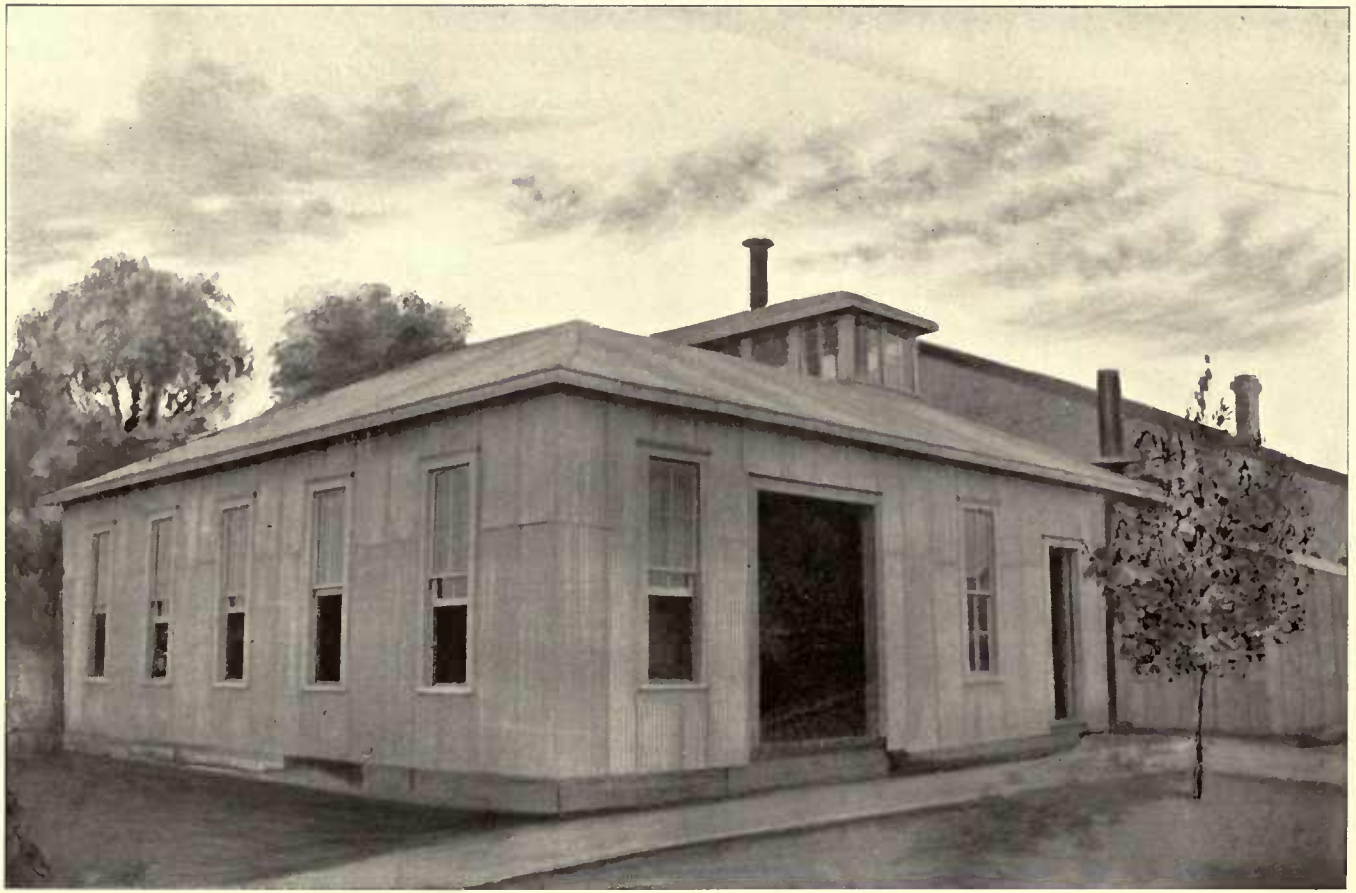
MISSISSIPPI AGRICULTURAL AND MECHANICAL COLLEGE, AGRICULTURAL COLLEGE, MISS.—FORGE SHOP INTERIOR.



IOWA AGRICULTURAL COLLEGE, AMES, IOWA.—MECHANICAL ENGINEERING BUILDINGS.



IOWA AGRICULTURAL COLLEGE, AMES, IOWA.—BLACKSMITH SHOP AND FOUNDRY INTERIOR.



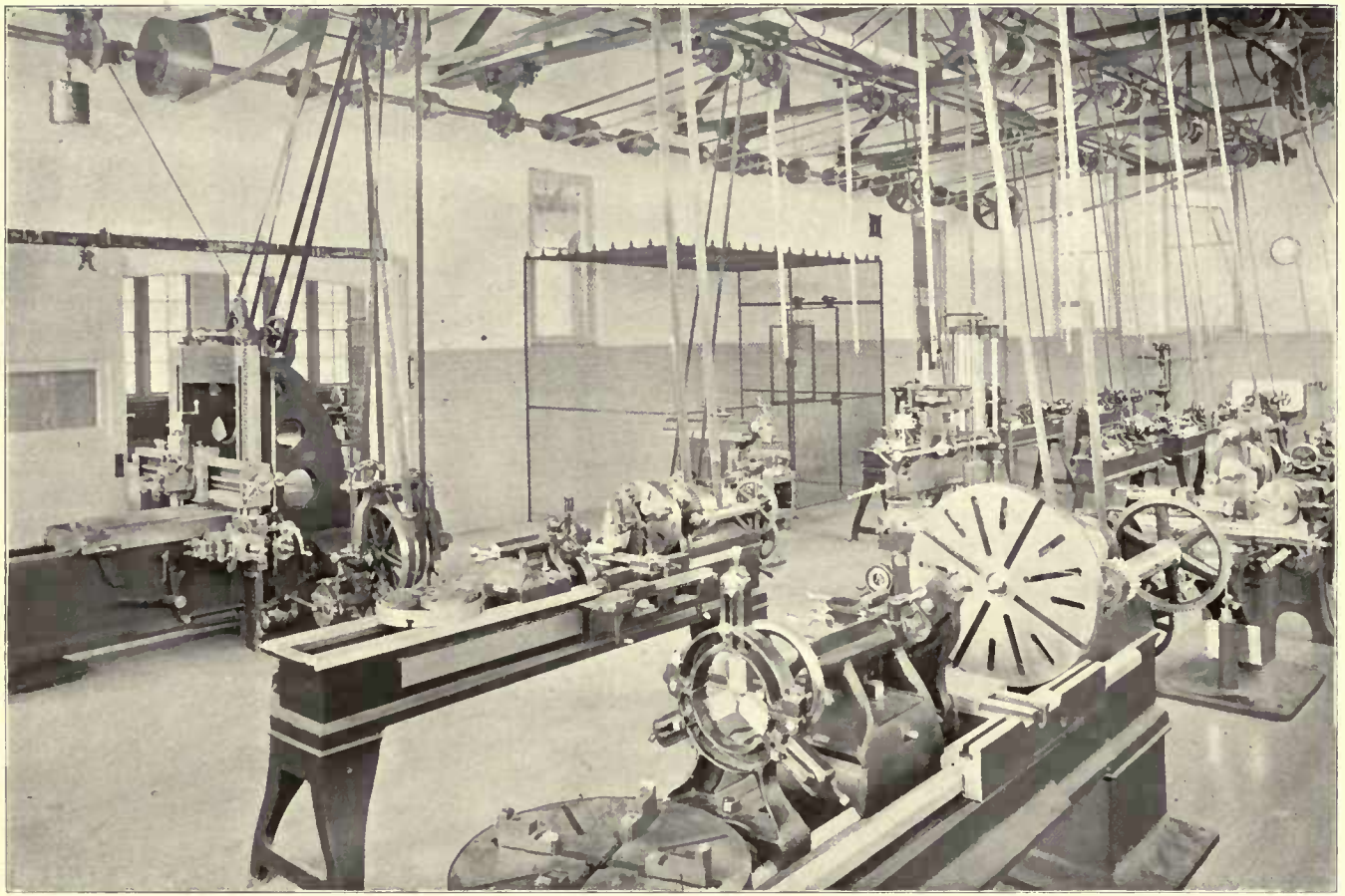
PRAIRIE VIEW STATE NORMAL SCHOOL, PRAIRIE VIEW, TEXAS.—BLACKSMITH SHOP AND MACHINERY BUILDINGS.



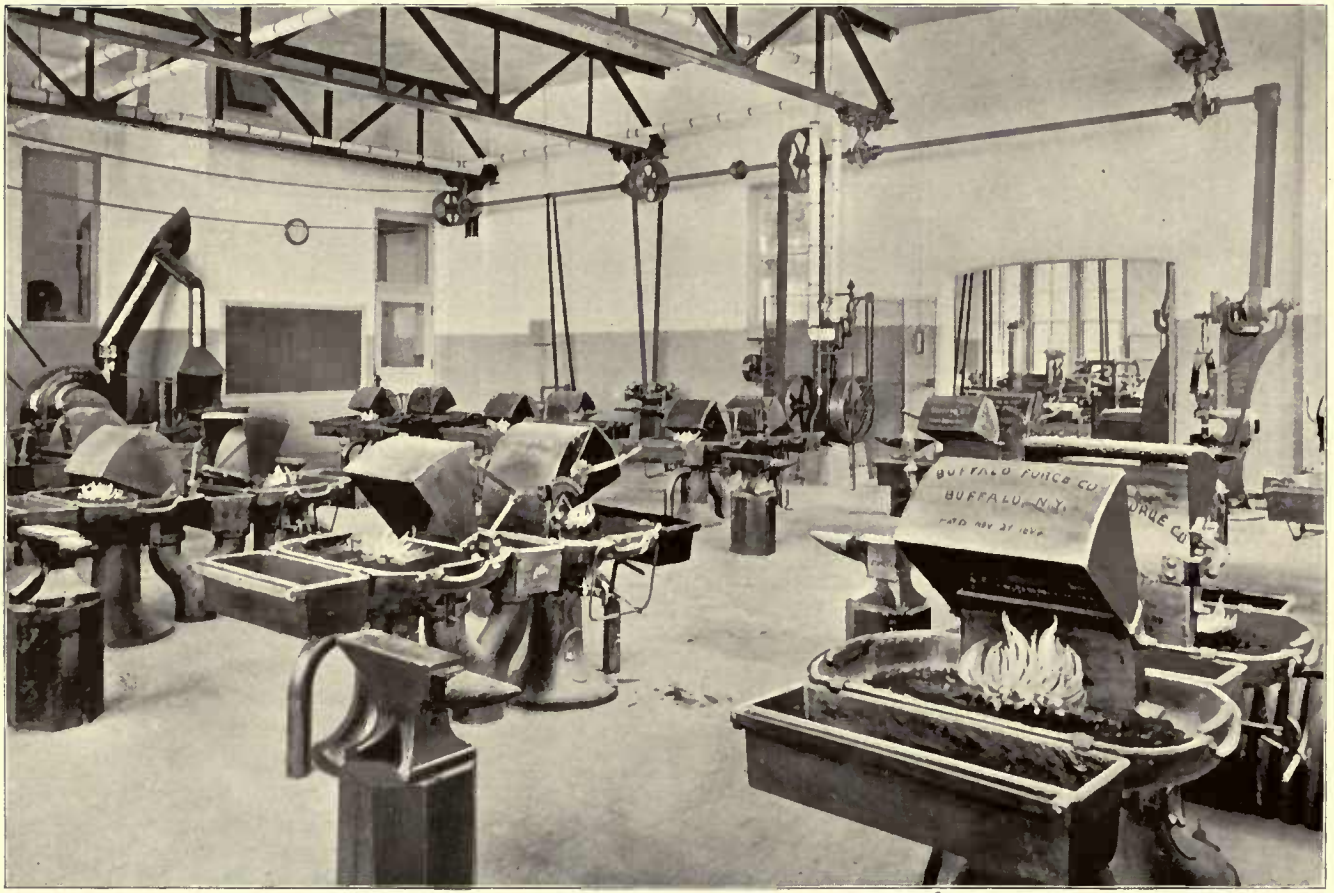
PRAIRIE VIEW STATE NORMAL SCHOOL, PRAIRIE VIEW, TEXAS.—FORGE SHOP INTERIOR.



STOUT MANUAL TRAINING SCHOOL, MENOMONIE, WIS.—MAIN BUILDING.



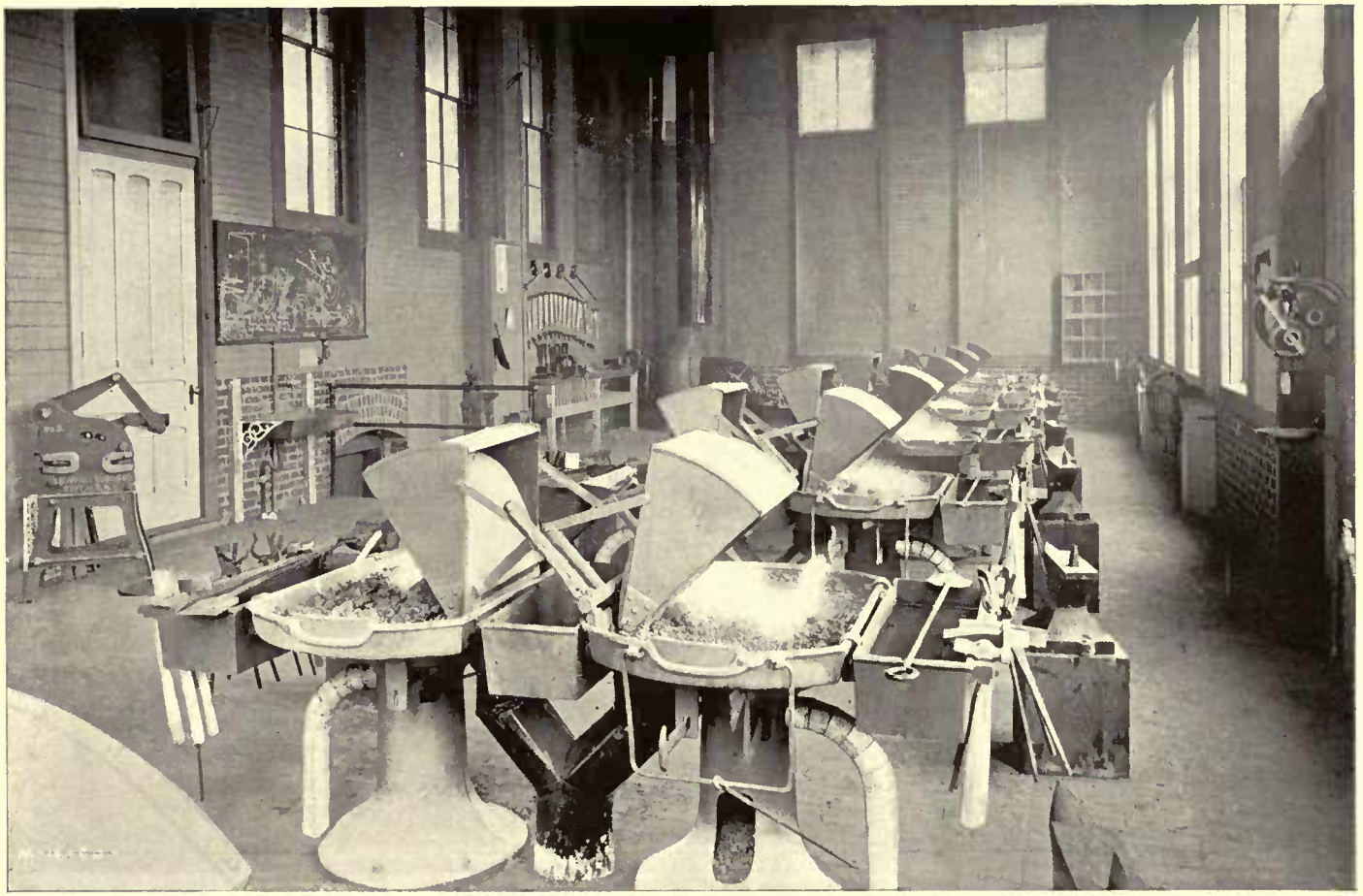
STOUT MANUAL TRAINING SCHOOL, MENOMONIE, WIS.—MACHINE SHOP INTERIOR.



STOUT MANUAL TRAINING SCHOOL, MENOMONIE, WIS.—FORGE SHOP INTERIOR, PRESENT BUILDING.
Furnished with same machines shown on following page after having passed through the fire, an illustrious example of their indestructibility.

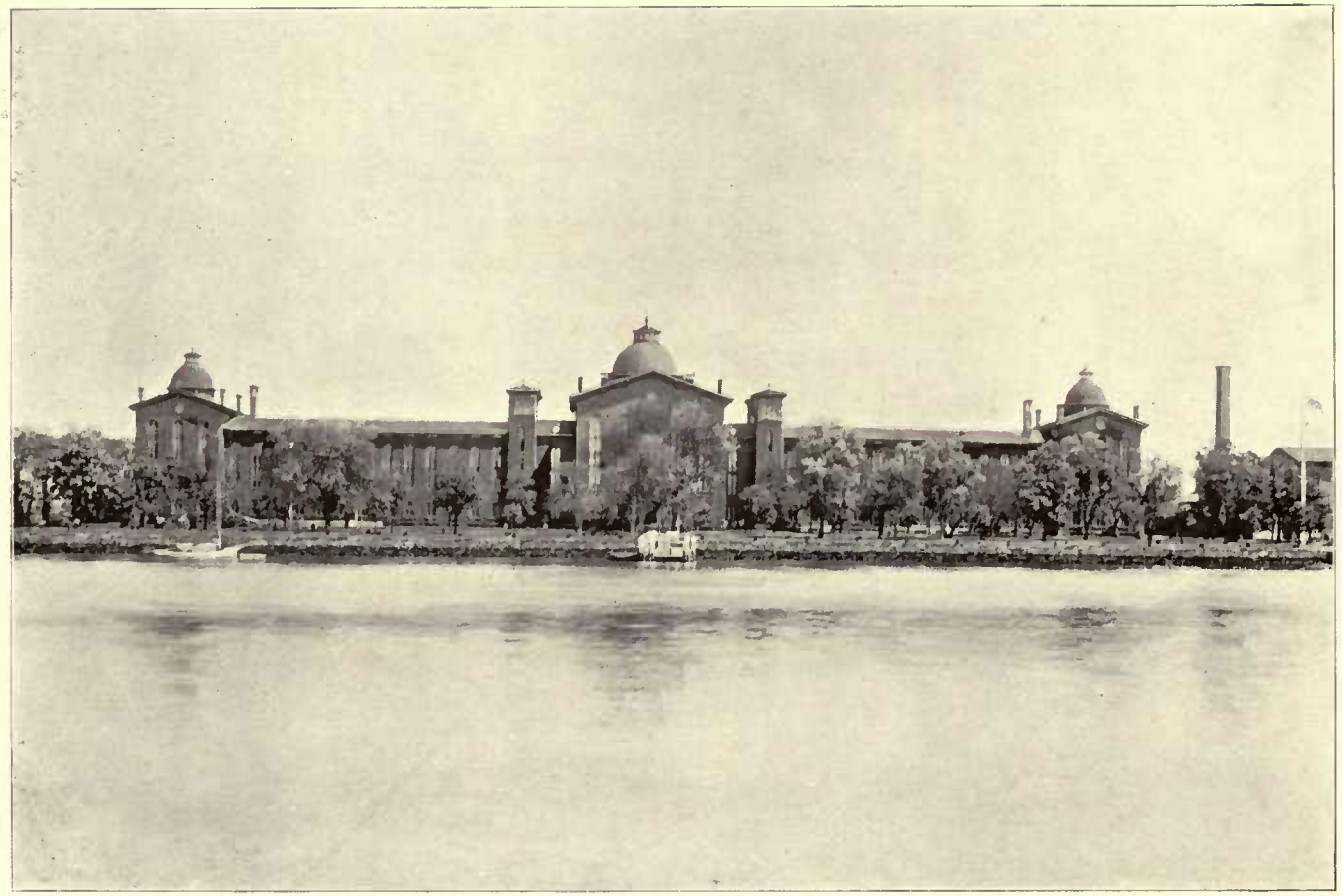
AMERICAN SCHOOLS OF MECHANICAL TECHNOLOGY,

BUFFALO FORGE COMPANY EQUIPMENT.

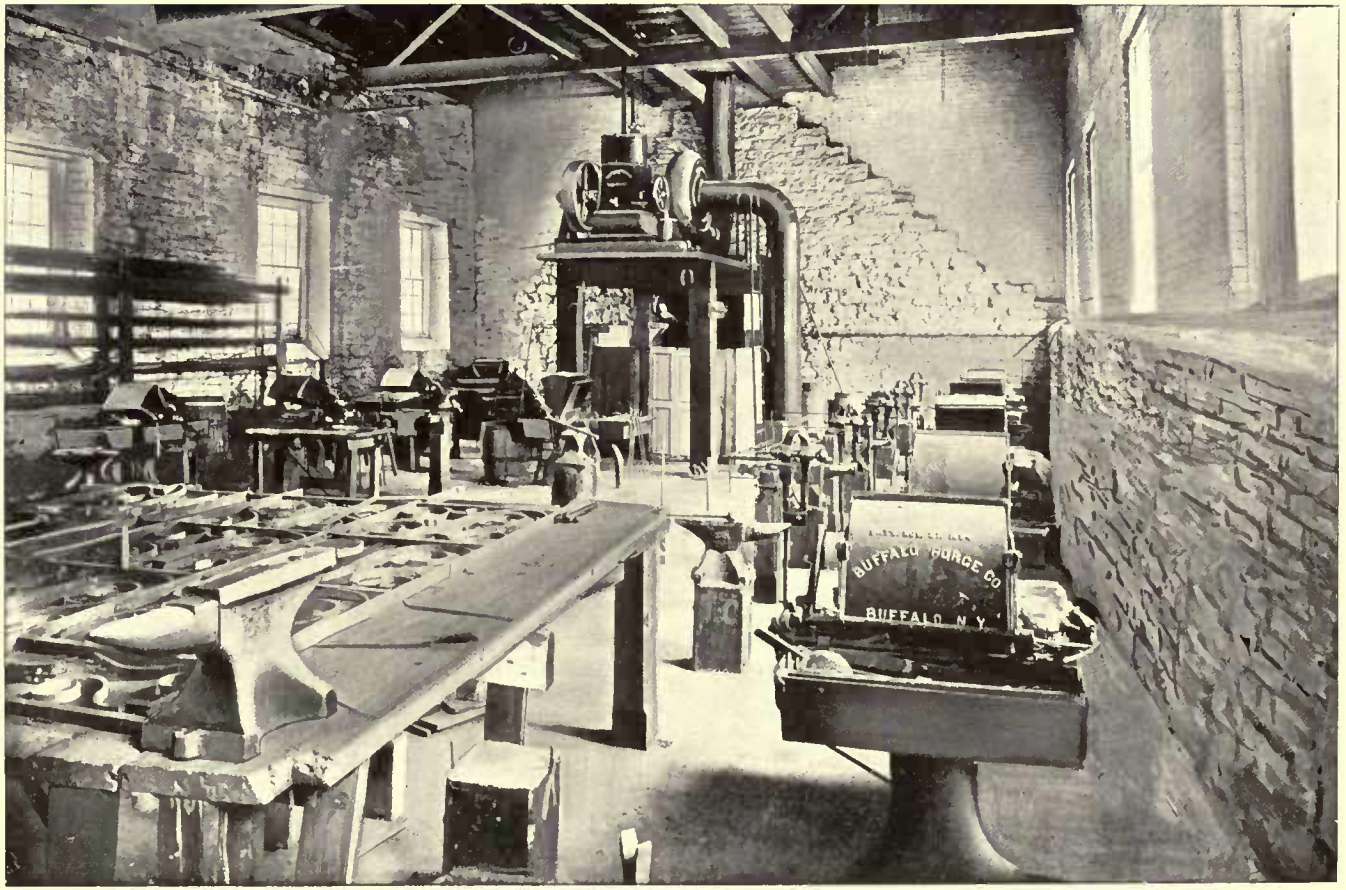


STOUT MANUAL TRAINING SCHOOL, MENOMONIE, WIS.—FORGE SHOP INTERIOR OF ORIGINAL BUILDING

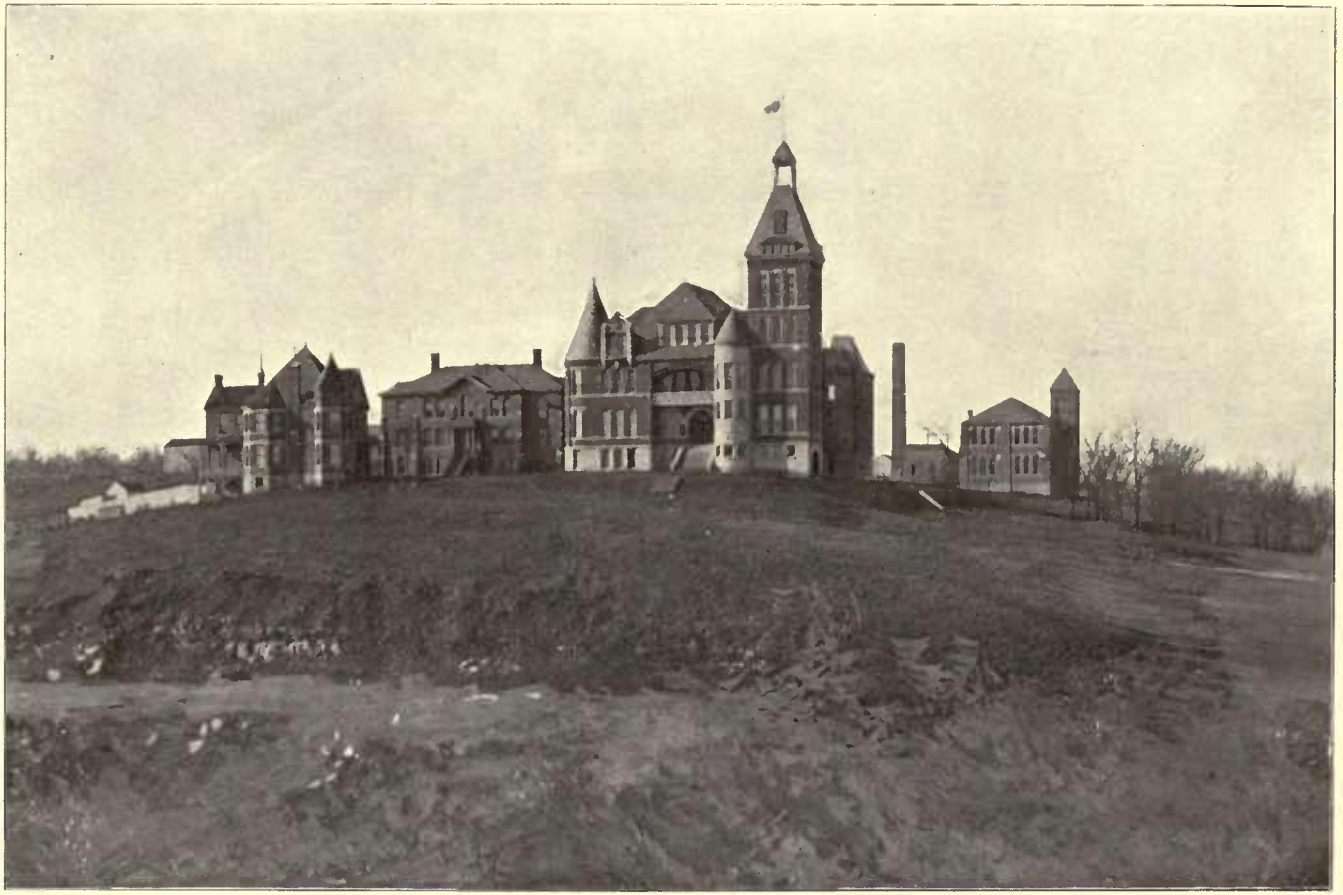
Original building destroyed by fire. Equipment uninjured and re-erected. See previous page.



HOUSE OF REFUGE, RANDALL'S ISLAND, N. Y.—MAIN BUILDING.



HOUSE OF REFUGE, RANDALL'S ISLAND, N. Y.—FORGE SHOP INTERIOR.



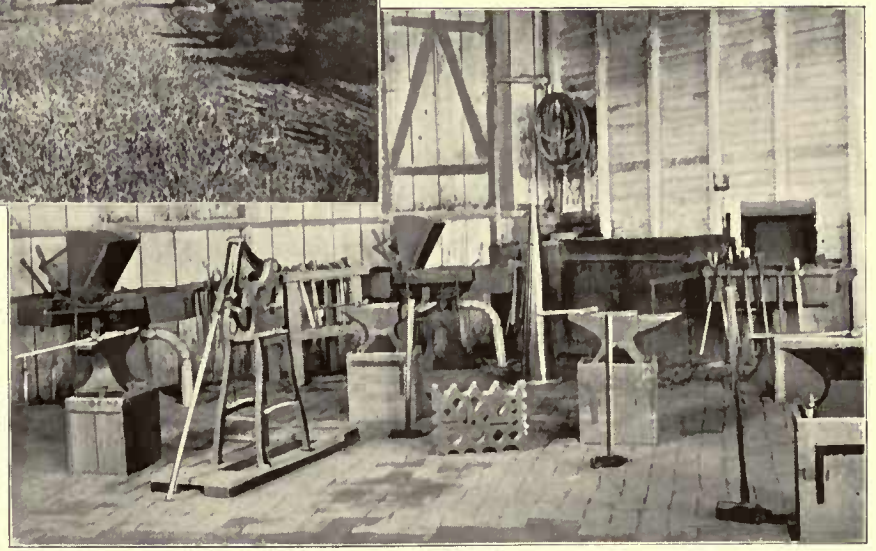
LINCOLN INSTITUTE, JEFFERSON CITY, MO.—MAIN AND INDUSTRIAL BUILDINGS.

AMERICAN SCHOOLS OF MECHANICAL TECHNOLOGY,

BUFFALO FORGE COMPANY EQUIPMENT.



ENGINEERING BUILDING, BUILT OF MEXICAN ADOBE.

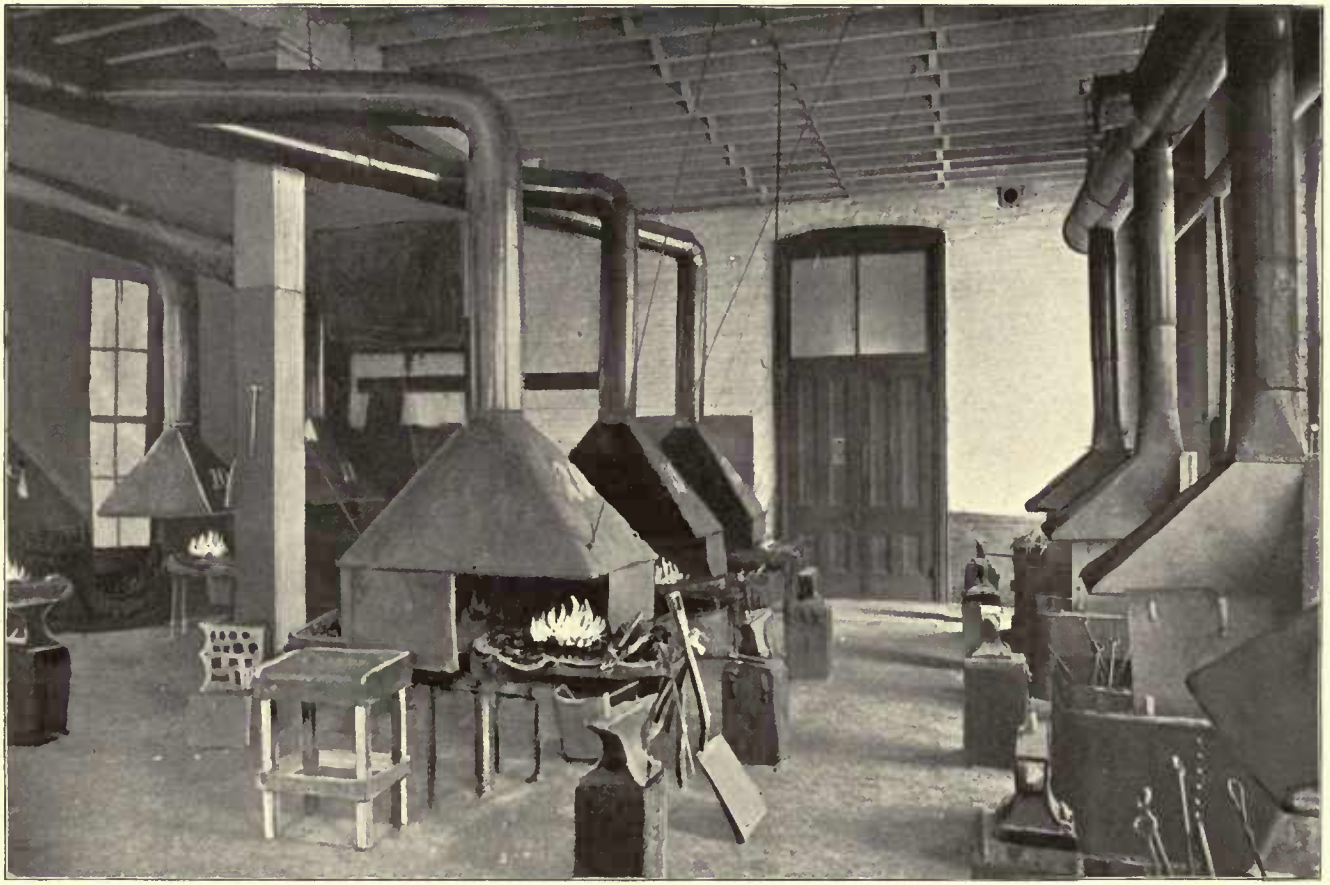


INTERIOR OF FORGE SHOP.

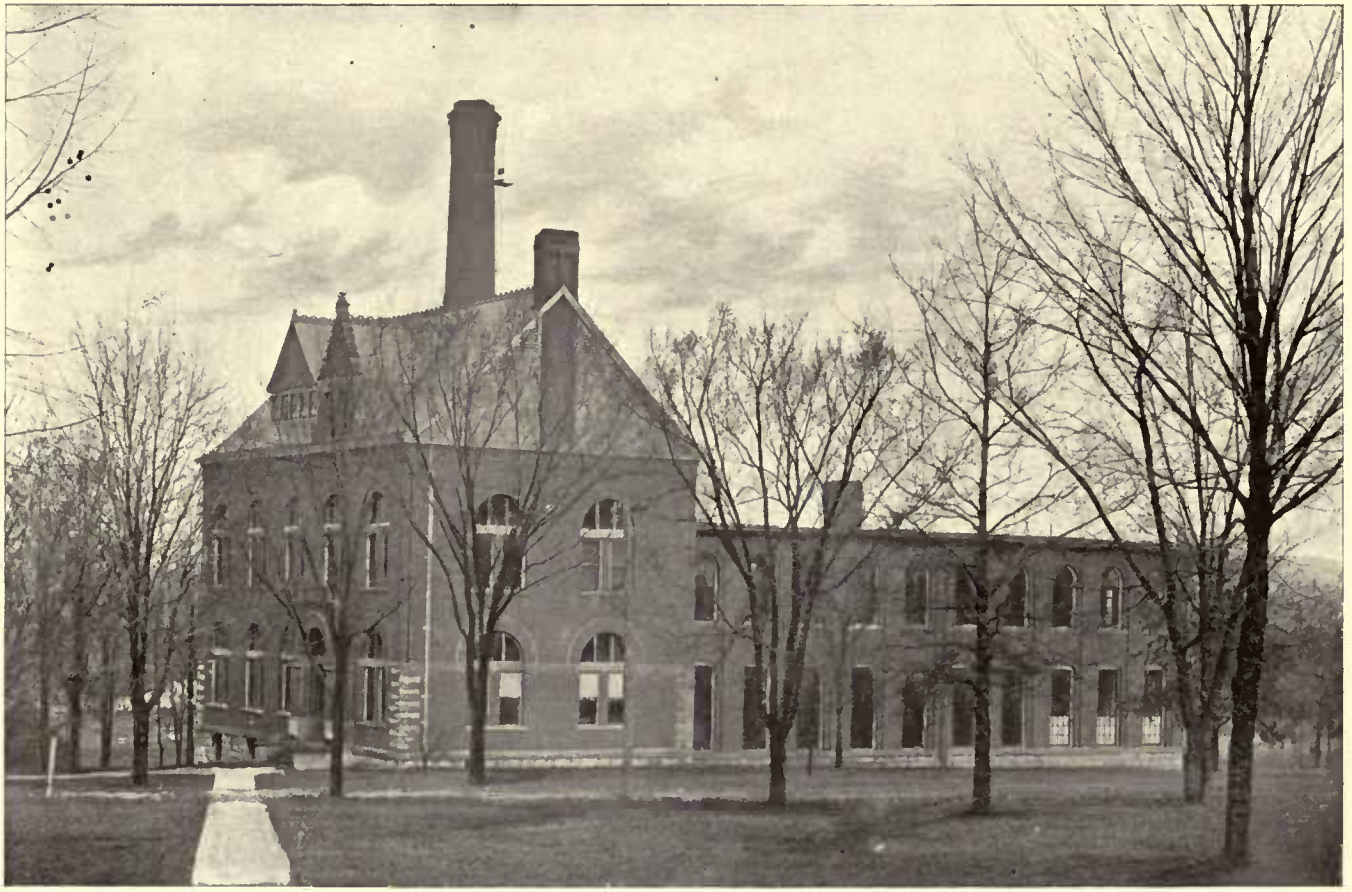
NEW MEXICO COLLEGE OF AGRICULTURE AND MECHANIC ARTS, MESILLA PARK, N. M.



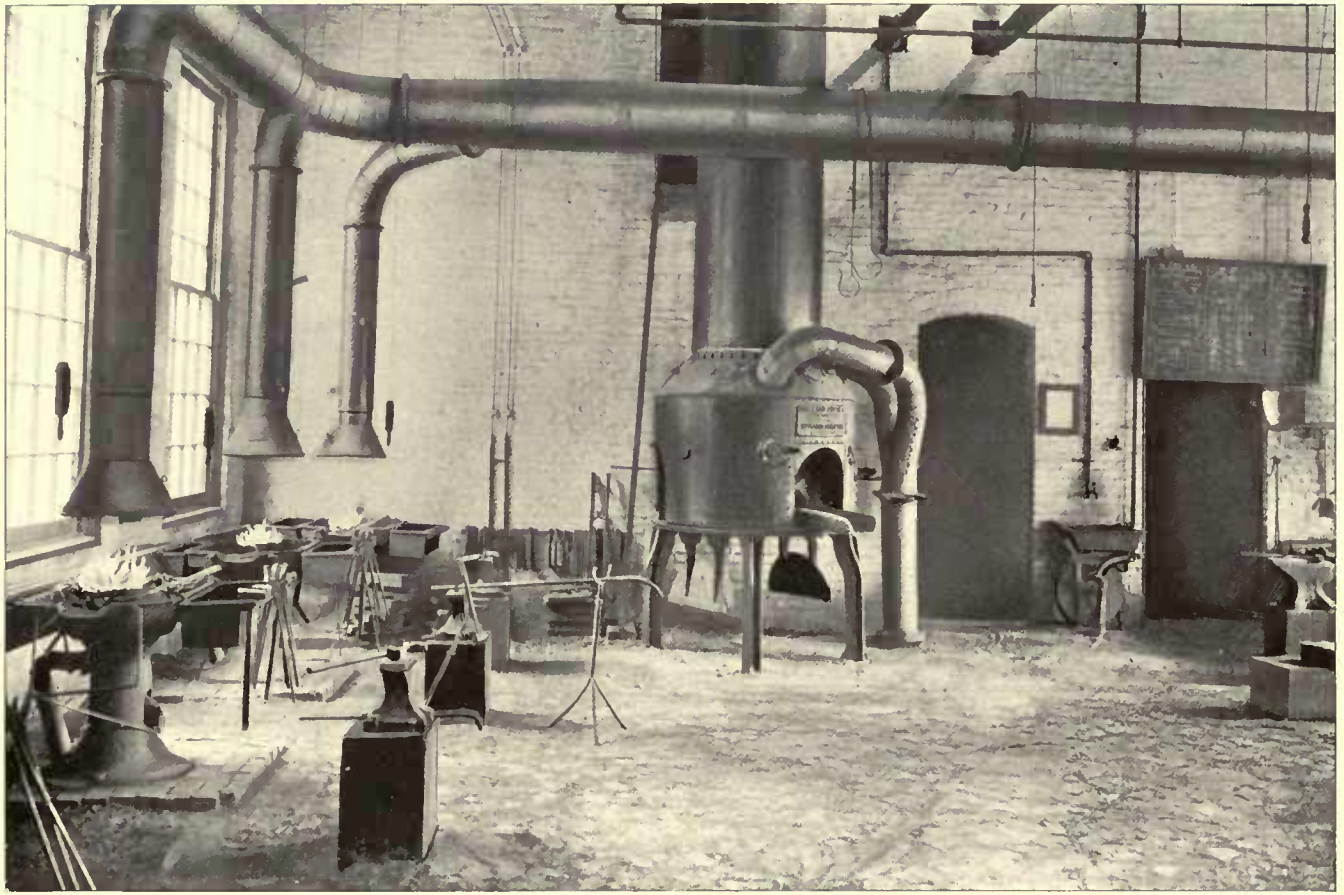
WASHINGTON UNIVERSITY, DEPARTMENT OF MANUAL TRAINING, ST. LOUIS, MO., MAIN BUILDING.



WASHINGTON UNIVERSITY, DEPARTMENT OF MANUAL TRAINING, ST. LOUIS, MO.—FORGE SHOP INTERIOR.



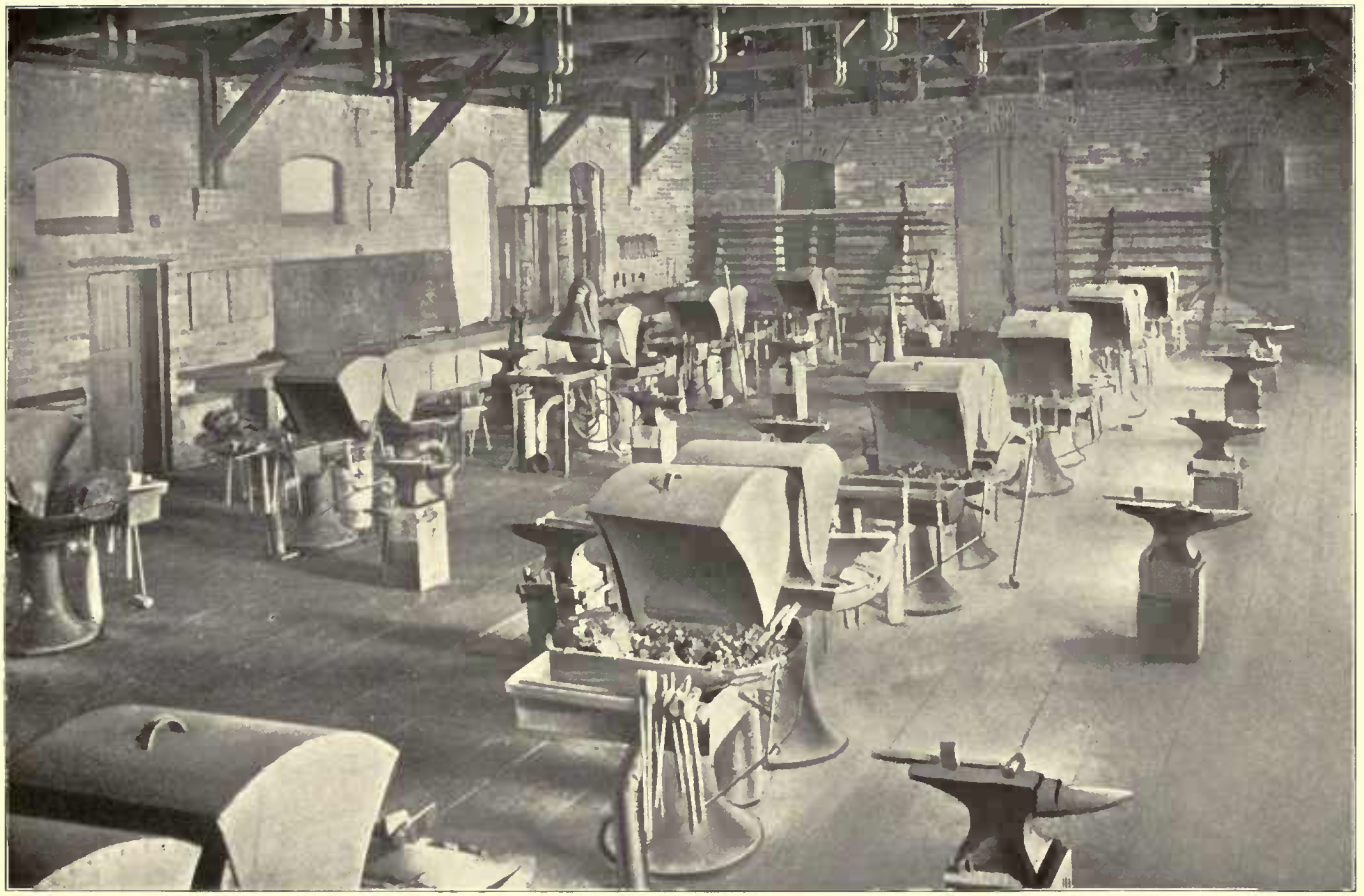
VANDERBILT UNIVERSITY, NASHVILLE, TENN.—MECHANICAL BUILDING.



VANDERBILT UNIVERSITY, NASHVILLE, TENN.—FORGE AND FOUNDRY INTERIOR.



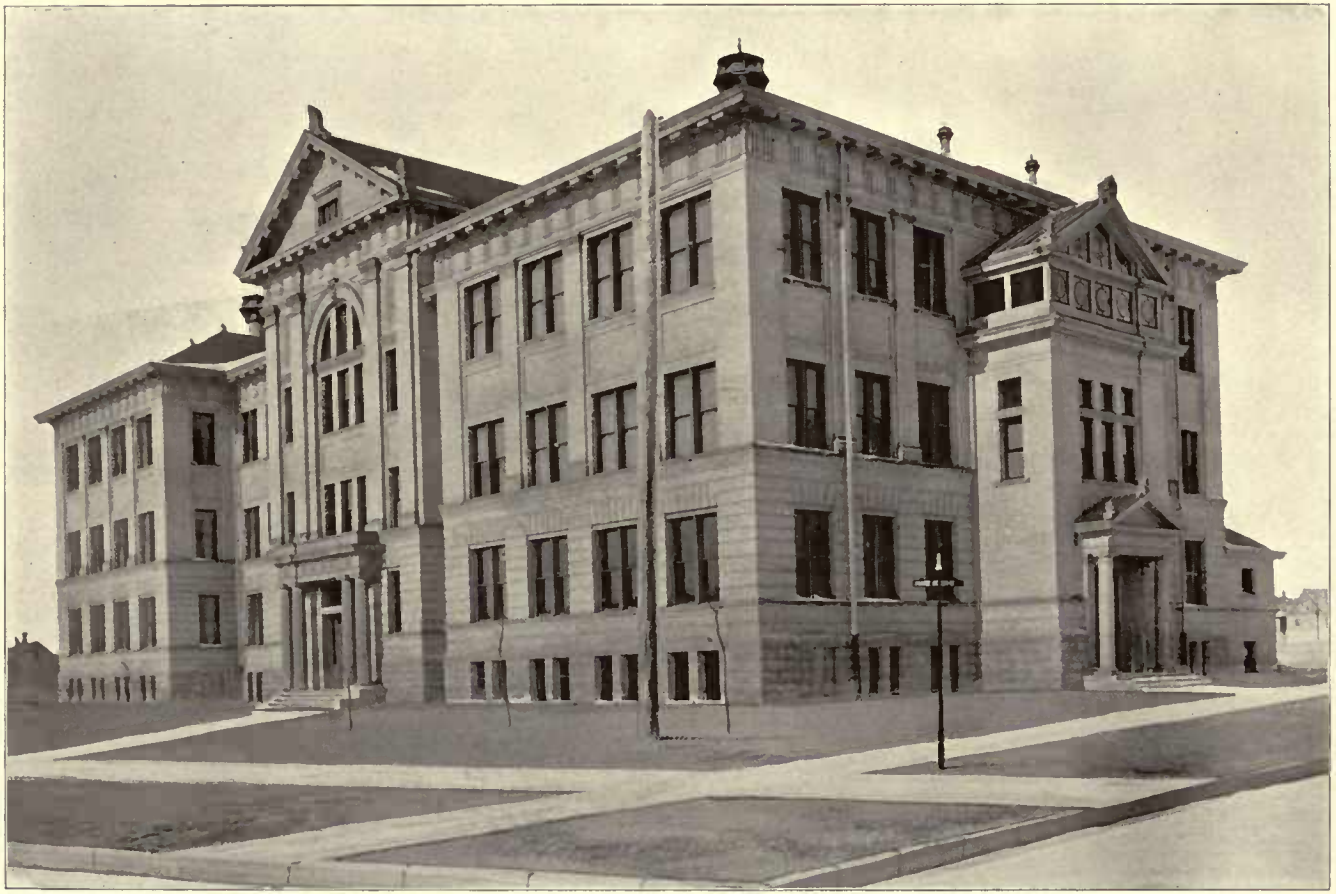
AGRICULTURAL COLLEGE OF UTAH, LOGAN, UTAH.—MECHANIC ARTS BUILDING.



AGRICULTURAL COLLEGE OF UTAH, LOGAN, UTAH.—FORGE SHOP INTERIOR.

AMERICAN SCHOOLS OF MECHANICAL TECHNOLOGY,

BUFFALO FORGE COMPANY EQUIPMENT.



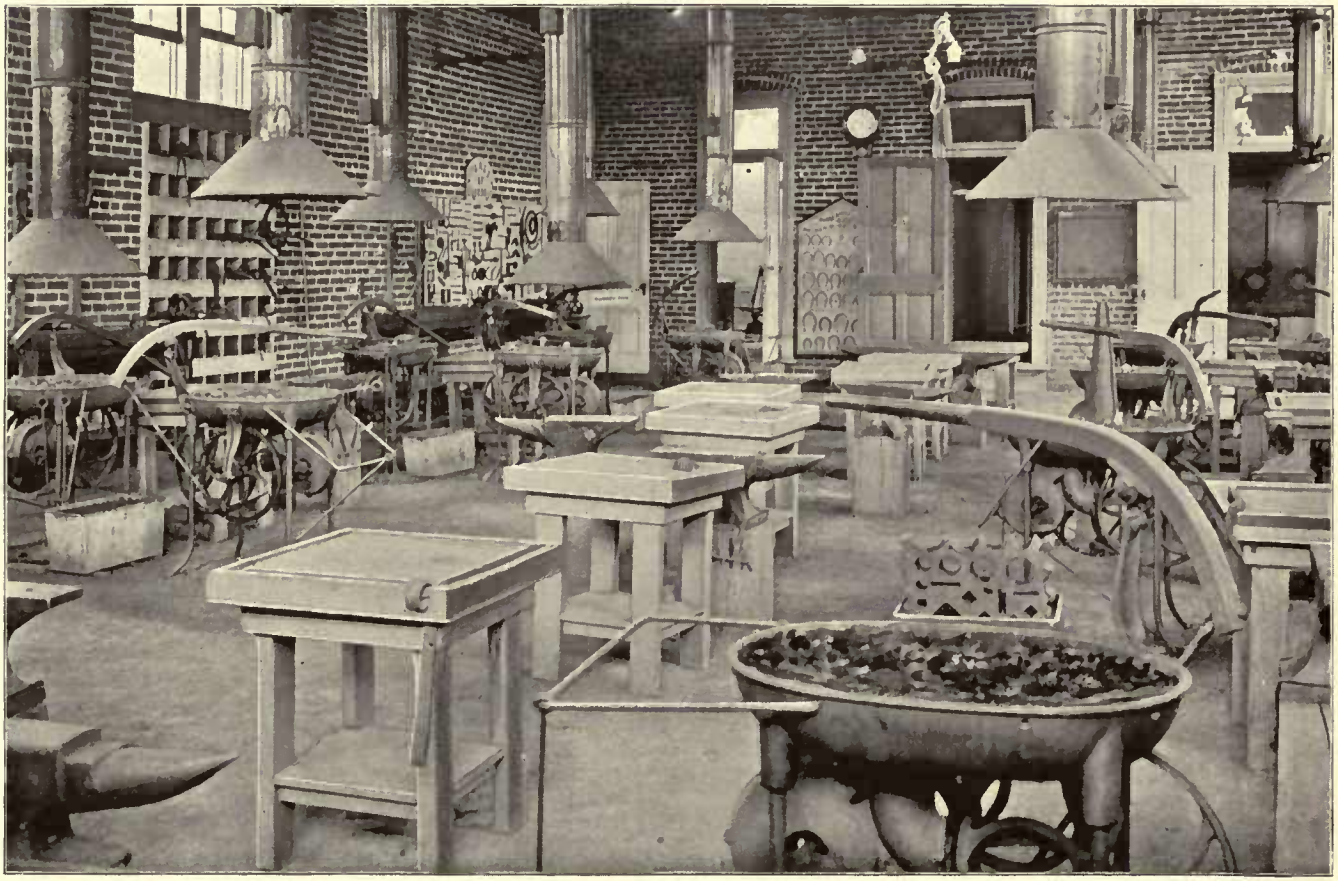
WEST SIDE HIGH SCHOOL, MILWAUKEE, WIS.—MAIN BUILDING.

AMERICAN SCHOOLS OF MECHANICAL TECHNOLOGY,

BUFFALO FORGE COMPANY EQUIPMENT.



WEST SIDE HIGH SCHOOL, MILWAUKEE, WIS.—FORGE SHOP INTERIOR.



HAMPTON NORMAL AND AGRICULTURAL INSTITUTE, HAMPTON, VA.—FORGE SHOP INTERIOR.

AMERICAN SCHOOLS OF MECHANICAL TECHNOLOGY,

BUFFALO FORGE COMPANY EQUIPMENT.

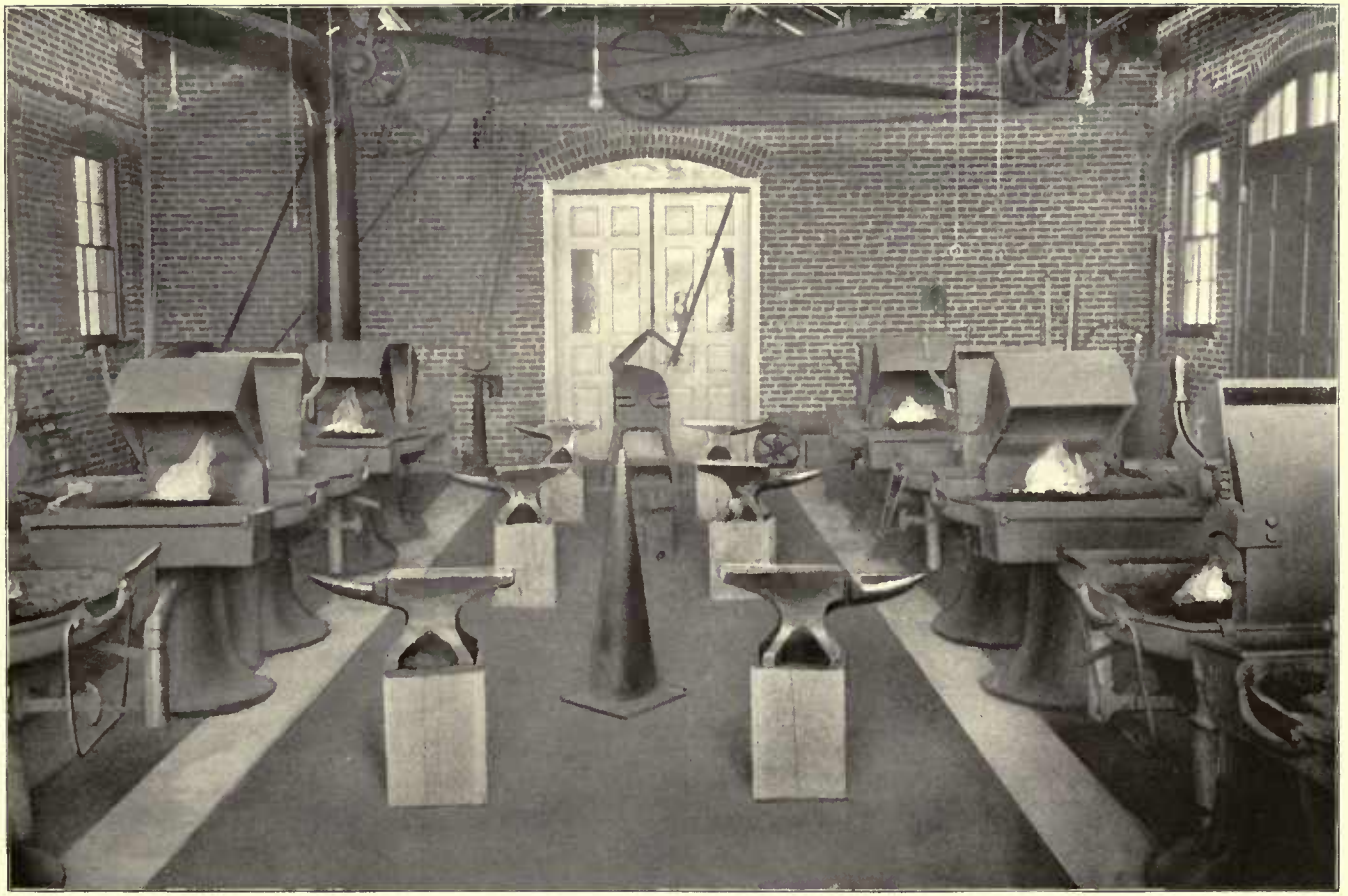


CENTRAL HIGH SCHOOL, MANUAL TRAINING DEPARTMENT, WASHINGTON, D. C.—FORGE SHOP INTERIOR.

LIBRARY OF THE UNIVERSITY OF CALIFORNIA



PENNSYLVANIA SOLDIERS' ORPHANS' INDUSTRIAL SCHOOL, SCOTLAND, PA.—MAIN BUILDING.



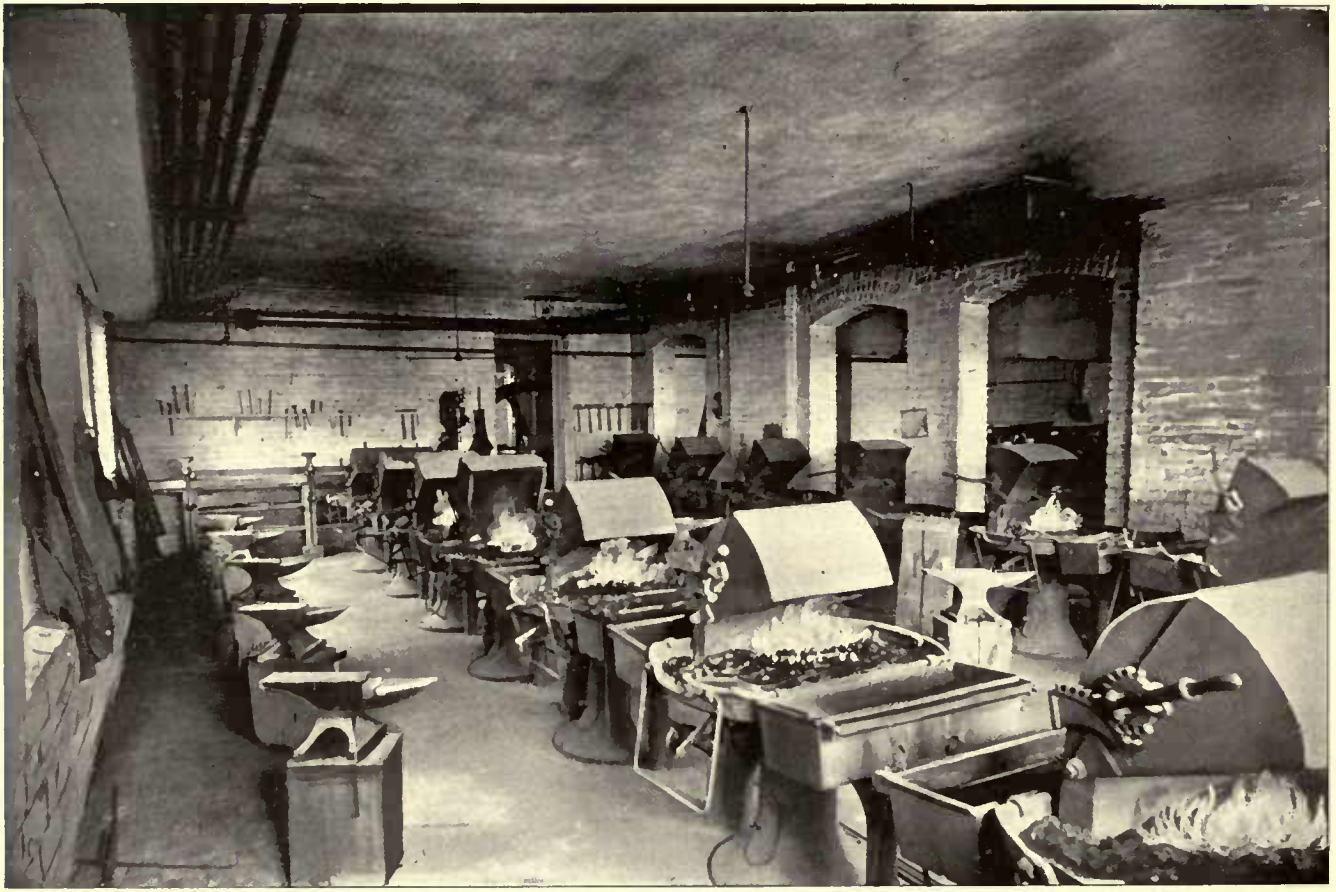
PENNSYLVANIA SOLDIERS' ORPHANS' INDUSTRIAL SCHOOL, SCOTLAND, PA.—FORGE SHOP INTERIOR.



THE TOLEDO UNIVERSITY AND MANUAL TRAINING SCHOOL, TOLEDO, OHIO.—MAIN BUILDING.



THE TOLEDO UNIVERSITY AND MANUAL TRAINING SCHOOL, TOLEDO, OHIO.—FORGE SHOP INTERIOR.



EAST SIDE HIGH SCHOOL, MILWAUKEE, WIS.— FORGE SHOP INTERIOR.

SMITH-SHOP equipments in industrial plants and technical schools have been revolutionized within the past few years by the patented improvements introduced by this house. A cumbersome overhead piping system of smoke removing, obstructing the view, is no longer a feature of a modern outfit. Designed and constructed with the utmost care, such are at their best inefficient, as they afford too great opportunity for escape of fumes into the shop without being caught by the action of the fan. In the better plants of to-day forge smoke and gases are now removed immediately upon being generated at the fire, and are carried through underground pipes, leaving the view of the shop entirely unobstructed and the atmosphere perfectly free. This system is installed in two ways: first, with separate fans, i. e., a blower for furnishing the blast and an exhauster for removing the smoke; second, with a Buffalo Combined Blower and Exhauster, which performs both duties. In the latter machine, a portion of the air is forced through the blast piping for supplying the blast to the fires, the balance being discharged into the smoke flue. Photographs or drawings of these special fans will be furnished on application.

A feature of a down-draft forge outfit which commends itself to first consideration is its practical indestructibility. For the steel plate forges extra heavy stock is selected, substantially braced to withstand injury from the heaviest work. The same form of hoods are employed as on the cast iron forges, i. e., heavy grey iron castings. The smoke is carried through glazed tile underground to the exhauster. Contrast such an equipment with the overhead system of piping which must be replaced about as often as ordinary stove pipe by reason of the action of the fumes from the forge fires, and the difference in cost is at once justified. In a number of cases where industrial works have been destroyed by fire, the Buffalo Down-Draft Forges have been removed from the debris uninjured, and erected upon rebuilding the plant.

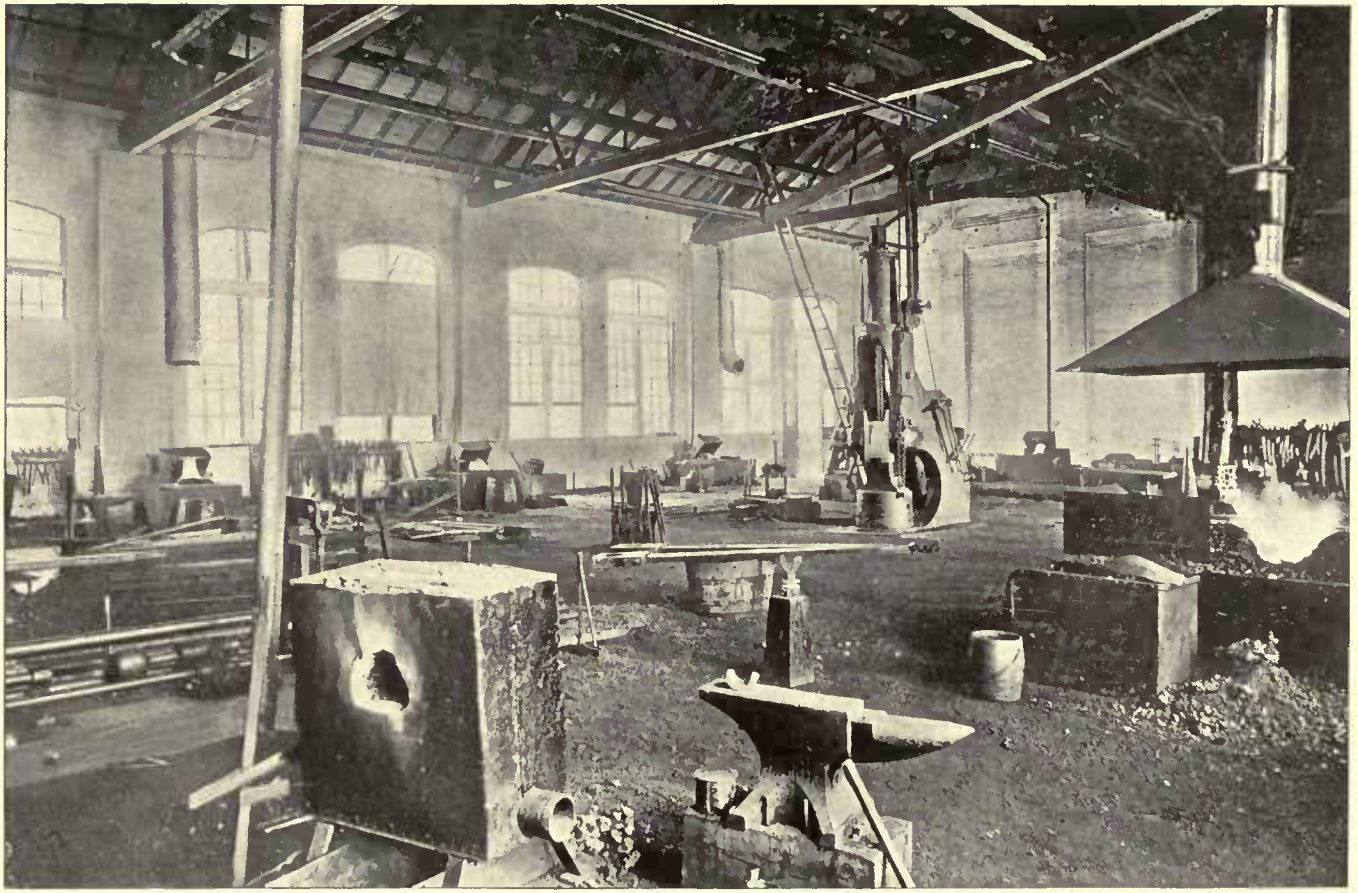
The cast-iron adjustable hoods on the Buffalo Down-Draft Forges may be moved close to the fire or drawn back according to conditions and work being performed. They are adapted to all Buffalo Stationary Forges. Whether the application be in manufacturing establishments or railroad repair shops, with the largest fires and heaviest work, or in technical schools, the results are uniformly of the highest efficiency. In forge shops where it has previously been impossible to keep the rooms sufficiently clear for economical working conditions, this system has rendered the atmosphere as pure as that of the most modern machine shop. The Buffalo Patented Down-Draft Exhaust System is fully covered by Letters Patent No. 52,945. All infringing manufacturers or users are hereby cautioned against employing any form of down-draft, smoke-removing apparatus. This system is equally suited to hard coal, coke and all furnace fires. The same general plan of removing foul odors, vapors, chemical acid fumes, ventilating hotel kitchens, etc., is equally efficient and has been widely applied to these various situations.



A TYPICAL INDUSTRIAL PLANT, C., C., C. & ST. LOUIS (BIG FOUR) R. R., WABASH, IND.—FORGE SHOP INTERIOR.

AMERICAN SCHOOLS OF MECHANICAL TECHNOLOGY,

BUFFALO FORGE COMPANY EQUIPMENT.



A TYPICAL INDUSTRIAL PLANT, C., C., C. & ST. LOUIS (BIG FOUR) R. R., WABASH, IND.—FORGE SHOP INTERIOR.



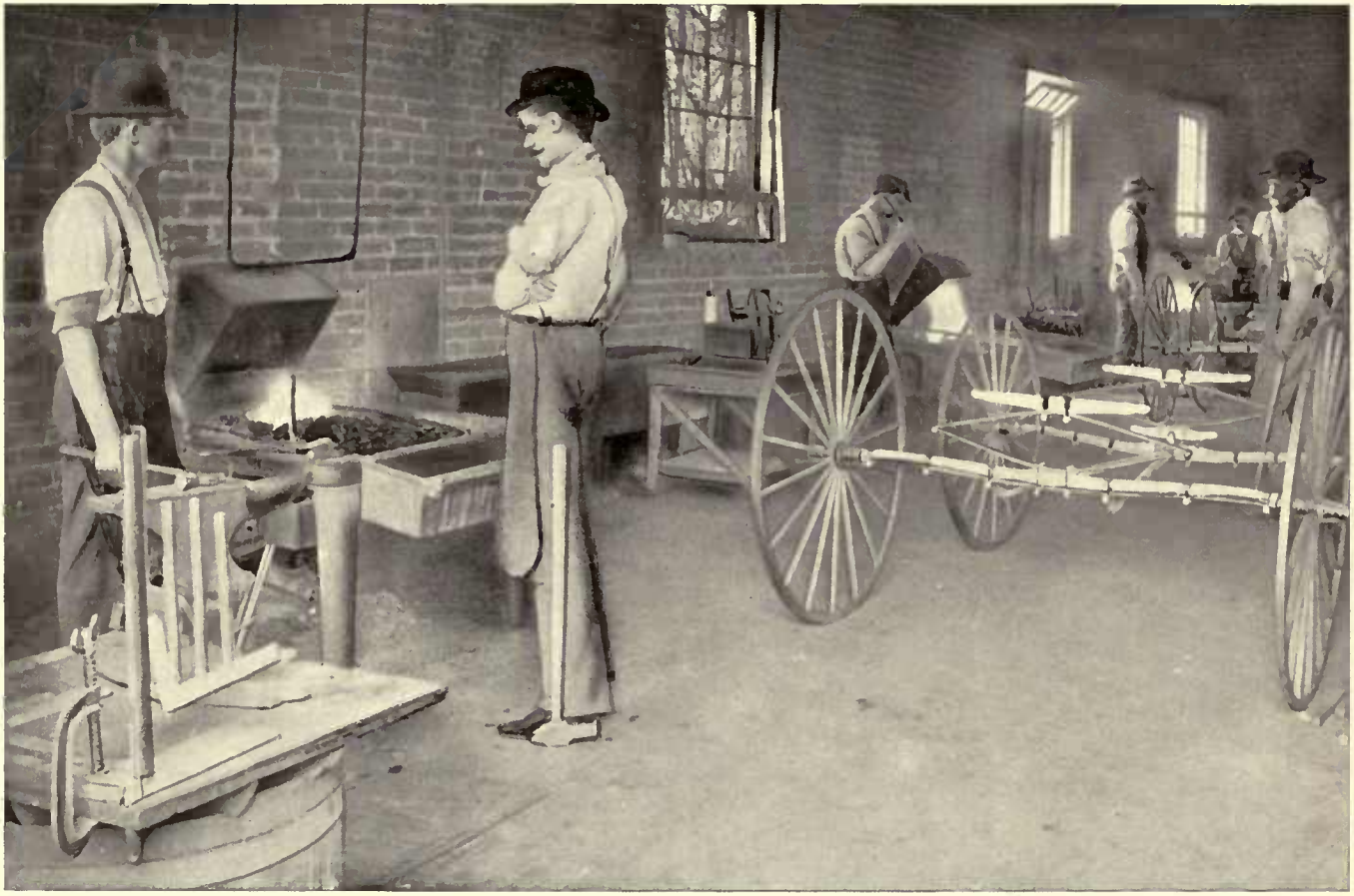
A TYPICAL INDUSTRIAL PLANT, THE TUDHOPE CARRIAGE COMPANY, ORILLIA, ONT.— FORGE AND WHEEL SHOP.

AMERICAN SCHOOLS OF MECHANICAL TECHNOLOGY,

BUFFALO FORGE COMPANY EQUIPMENT.



A TYPICAL INDUSTRIAL PLANT, THE TUDHOPE CARRIAGE COMPANY, ORILLIA, ONT.—FORGE AND WHEEL SHOP.



A TYPICAL INDUSTRIAL PLANT, JACKSON G. SMITH, BARNESVILLE, GA.—FORGE AND WHEEL SHOP INTERIOR.

AMERICAN SCHOOLS OF MECHANICAL TECHNOLOGY,

BUFFALO FORGE COMPANY EQUIPMENT.



A TYPICAL INDUSTRIAL PLANT, NEW CONKLIN WAGON WORKS, OLEAN, N. Y., FORGE AND WHEEL SHOP INTERIOR.



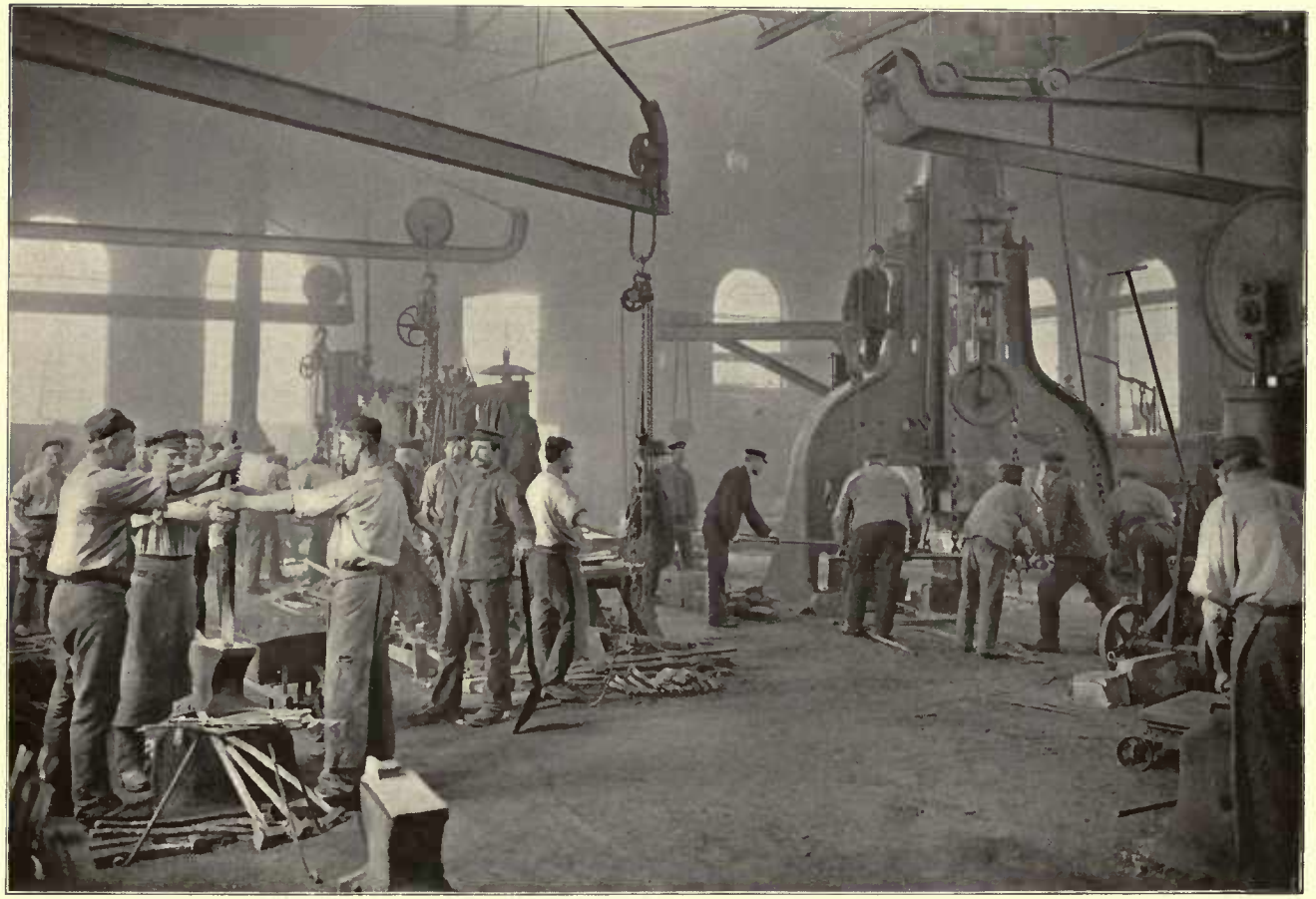
A TYPICAL INDUSTRIAL PLANT, PEORIA & PEKIN UNION RAILWAY, PEORIA, ILL.—FORGE SHOP INTERIOR.
VIEW SHOWING EXTRA HEAVY FORGE AND INCIDENTAL WORK.



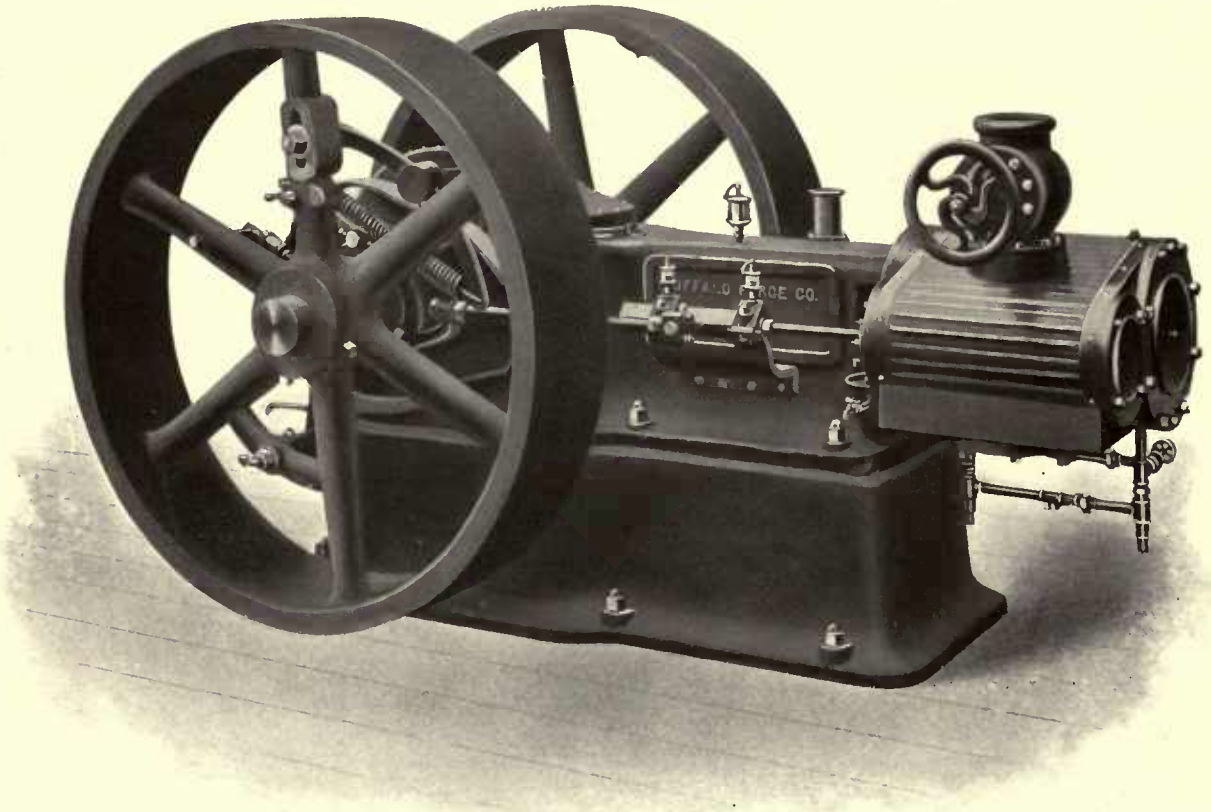
A TYPICAL INDUSTRIAL PLANT, PEORIA & PEKIN UNION RAILWAY, PEORIA, ILL.—FORGE SHOP INTERIOR.



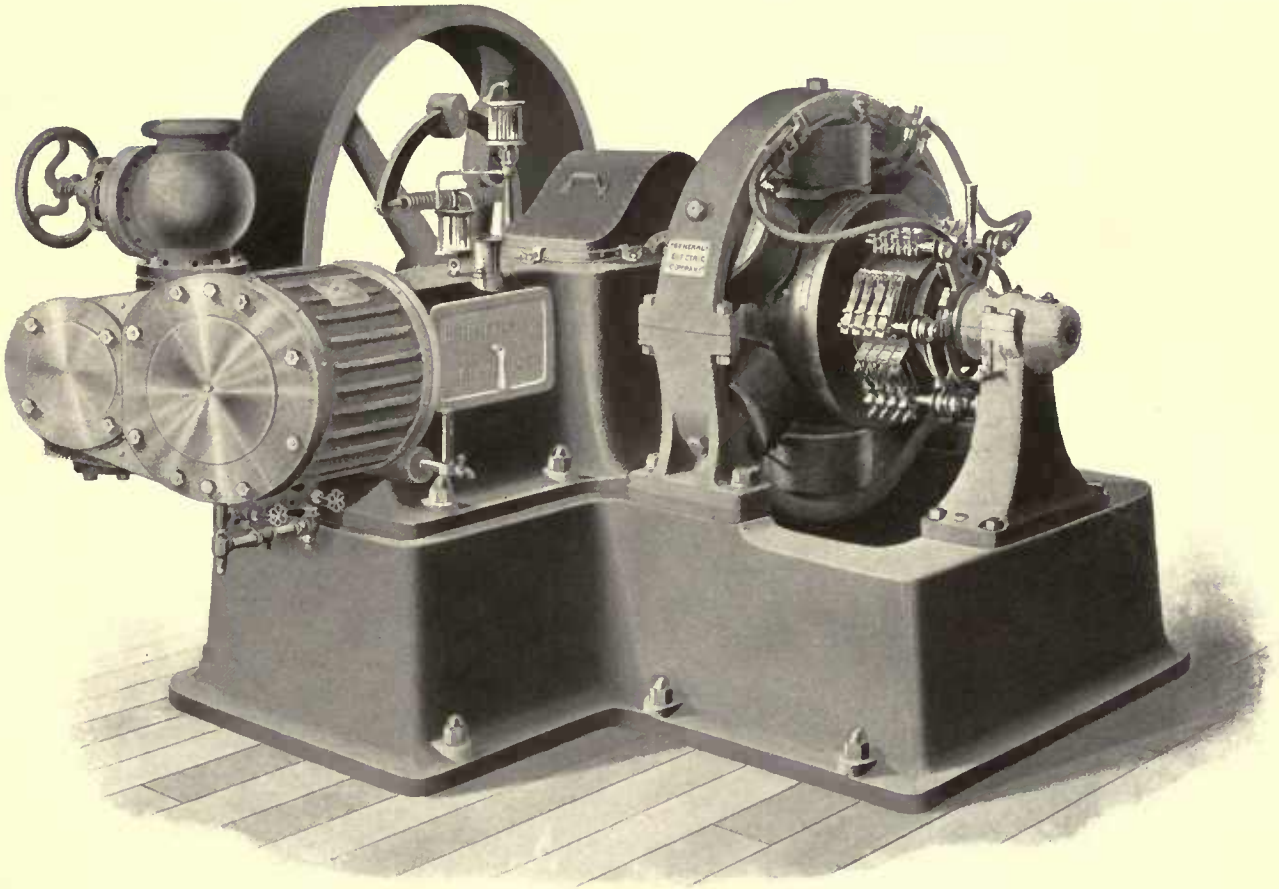
A TYPICAL EUROPEAN INDUSTRIAL PLANT, HOWALDTSWERKE, KIEL, GERMANY.—FORGE SHOP INTERIOR.
Buffalo Down-Draft Forges Used.



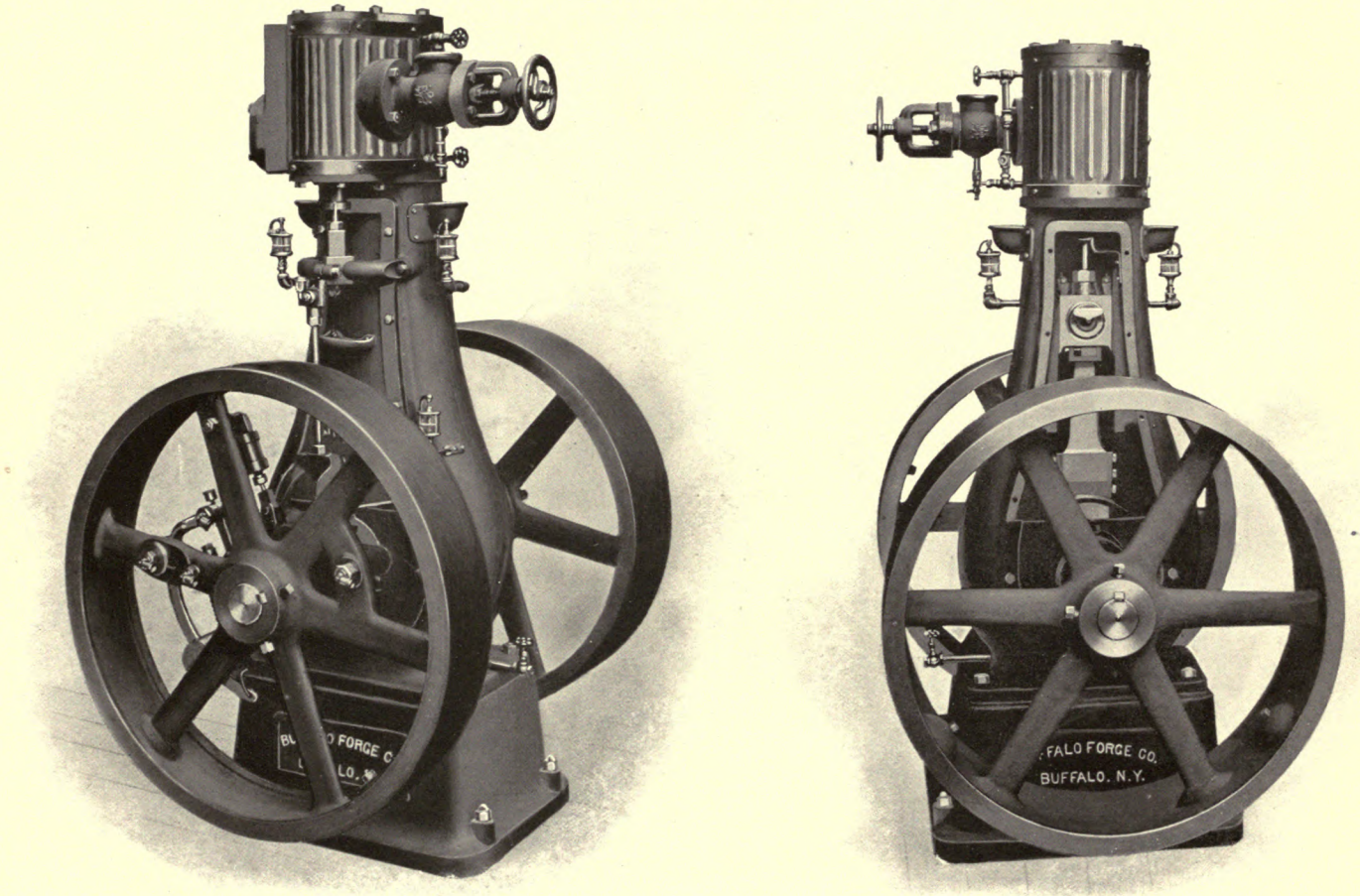
A TYPICAL EUROPEAN INDUSTRIAL PLANT, HOWALDTSWERKE, KIEL, GERMANY.—FORGE SHOP INTERIOR.
Buffalo Down-Draft Forges Used.



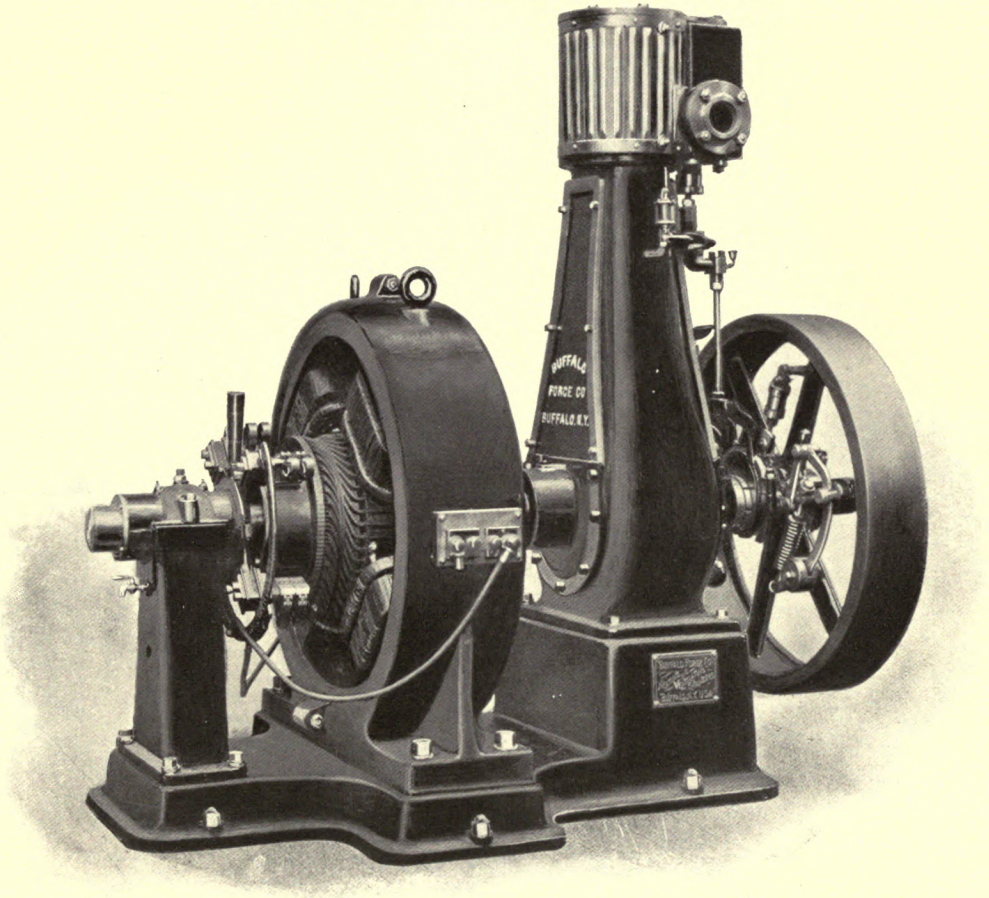
CLASS "A" BUFFALO FORGE COMPANY ENGINE, CENTER CRANK, HORIZONTAL TYPE.
FRONT SIDE VIEW SHOWING GOVERNOR PULLEY.



CLASS "A" BUFFALO FORGE COMPANY ENGINE, CENTER CRANK, HORIZONTAL TYPE
GENERAL ELECTRIC COMPANY GENERATOR.



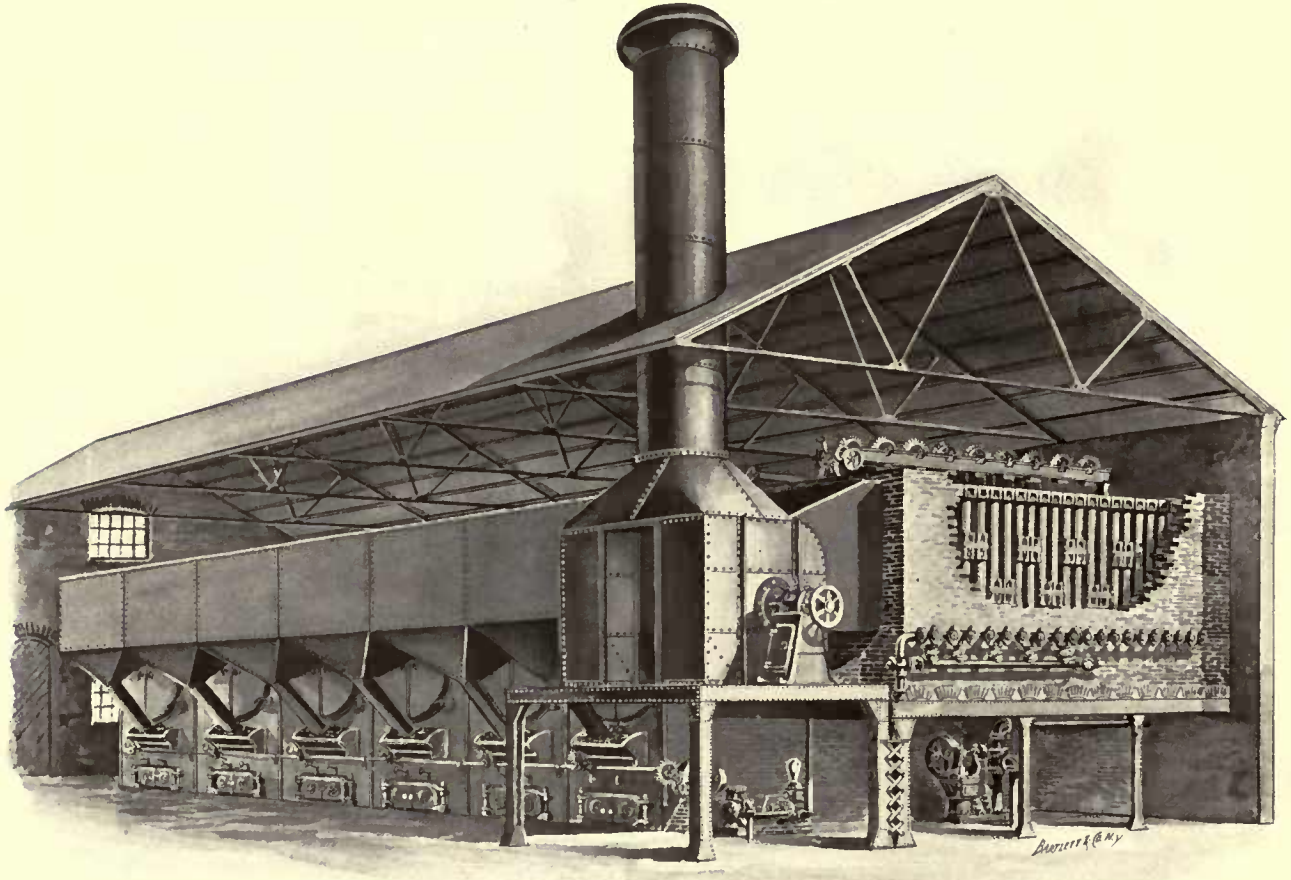
CLASS "A" BUFFALO FORGE COMPANY ENGINES. UPRIGHT ENCLOSED TYPE, SELF-OILING FORM.



CLASS "A" BUFFALO FORGE COMPANY ENGINE. TRIUMPH ELECTRIC COMPANY GENERATOR.

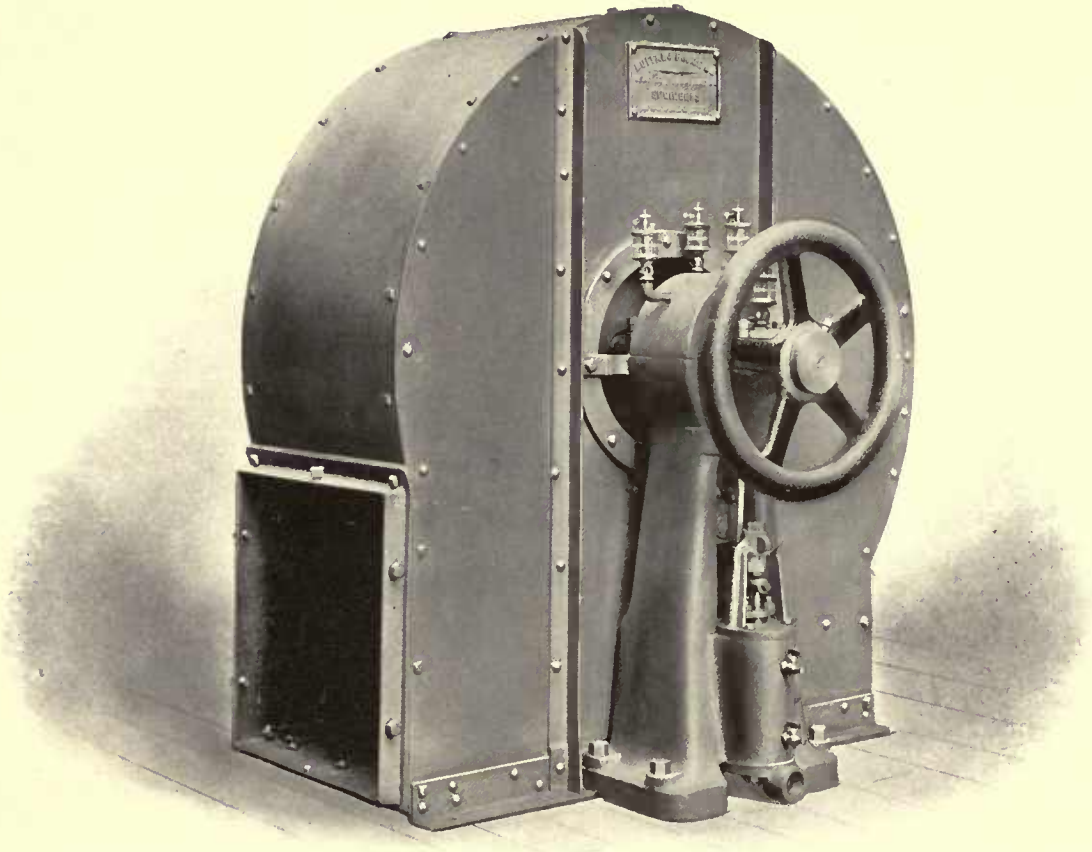
AMERICAN SCHOOLS OF MECHANICAL TECHNOLOGY,

BUFFALO FORGE COMPANY EQUIPMENT.

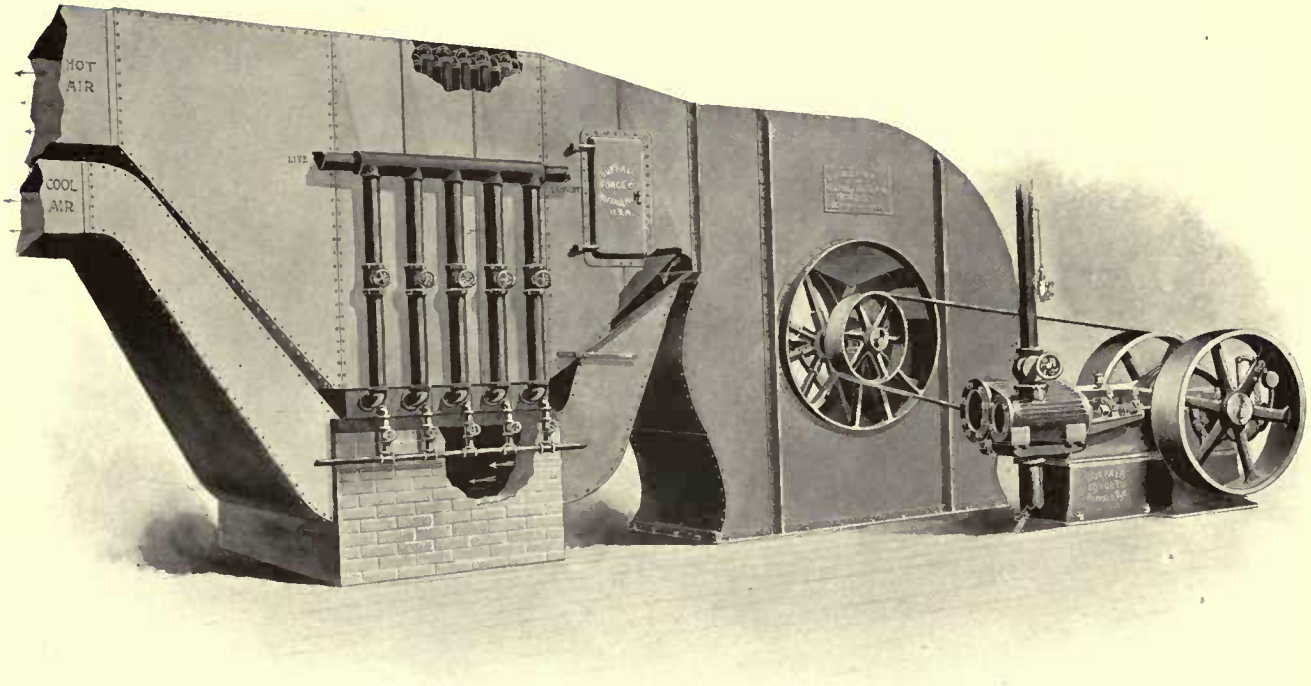


MECHANICAL DRAFT APPARATUS—A COMPLETE STEAM PLANT, WITH ECONOMIZERS, STOKERS AND BOILERS.

INSTALLED BY MESSRS. WESTINGHOUSE, CHURCH, KERR & CO. RIGHT AND LEFT HAND UP-BLAST DISCHARGE FANS. DOUBLE UPRIGHT ENCLOSED ENGINES, WITH OVERHUNG WHEELS AND WATER-COOLING BEARINGS.

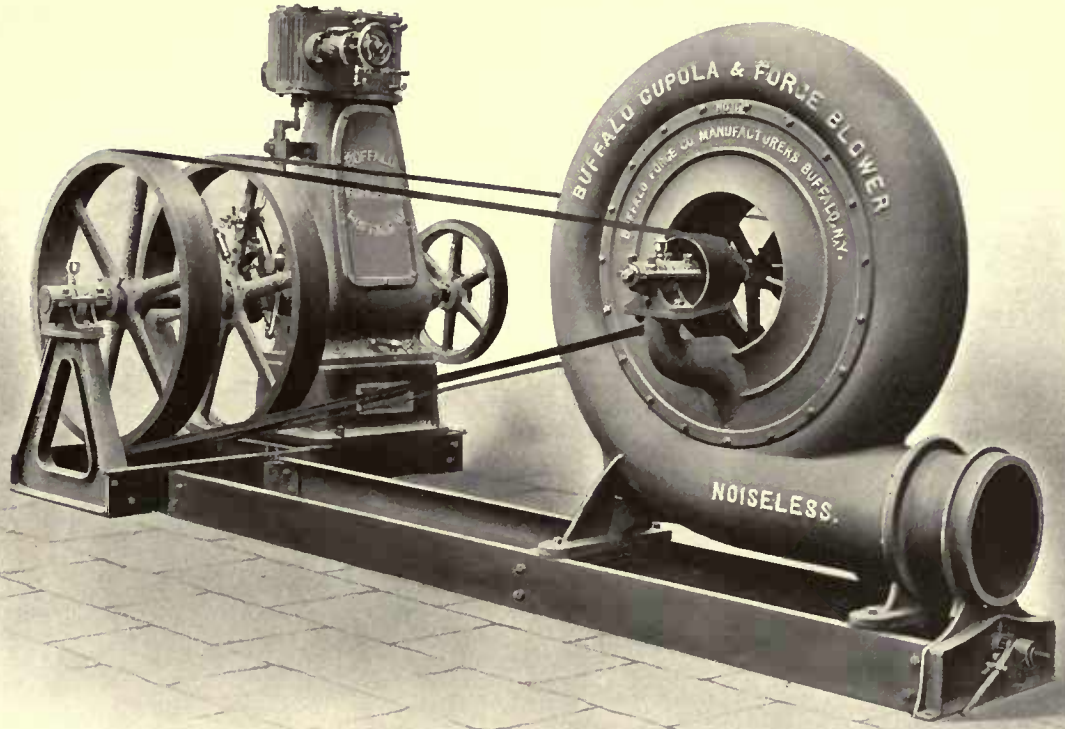


TYPICAL STEAM FAN, WITH SINGLE UPRIGHT SELF-CONTAINED ENGINE.
RIGHT HAND BOTTOM HORIZONTAL DISCHARGE EXHAUSTER, FAN WHEEL OVERHUNG.

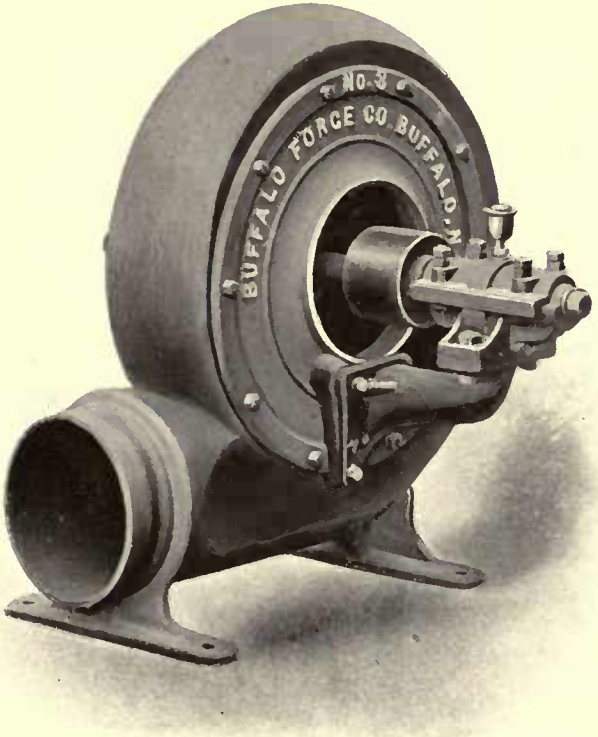


BUFFALO FAN SYSTEM OF HEATING AND VENTILATING APPARATUS FOR DOUBLE DUCT APPLICATION.

FAN RIGHT HAND TOP HORIZONTAL DISCHARGE, BLOWING THROUGH HEATER, COLD AIR BY-PASS UNDERNEATH.

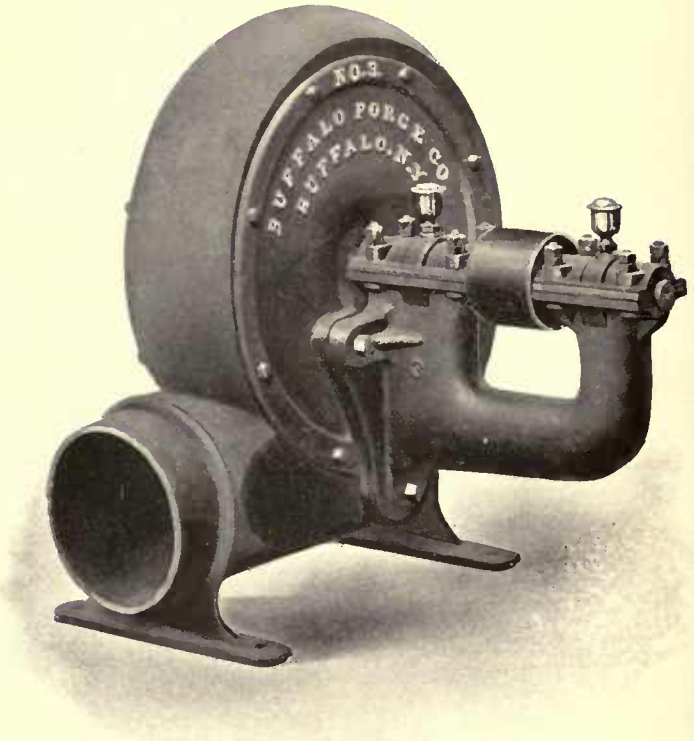


BUFFALO STEEL PRESSURE BLOWER, ON ADJUSTABLE BED, WITH COUNTERSHAFT AND DOUBLE UPRIGHT ENGINE.
ENCLOSED AUTOMATIC ENGINE RUNNING IN OIL, CYLINDERS ABOVE THE SHAFT, RIGHT HAND APPARATUS.



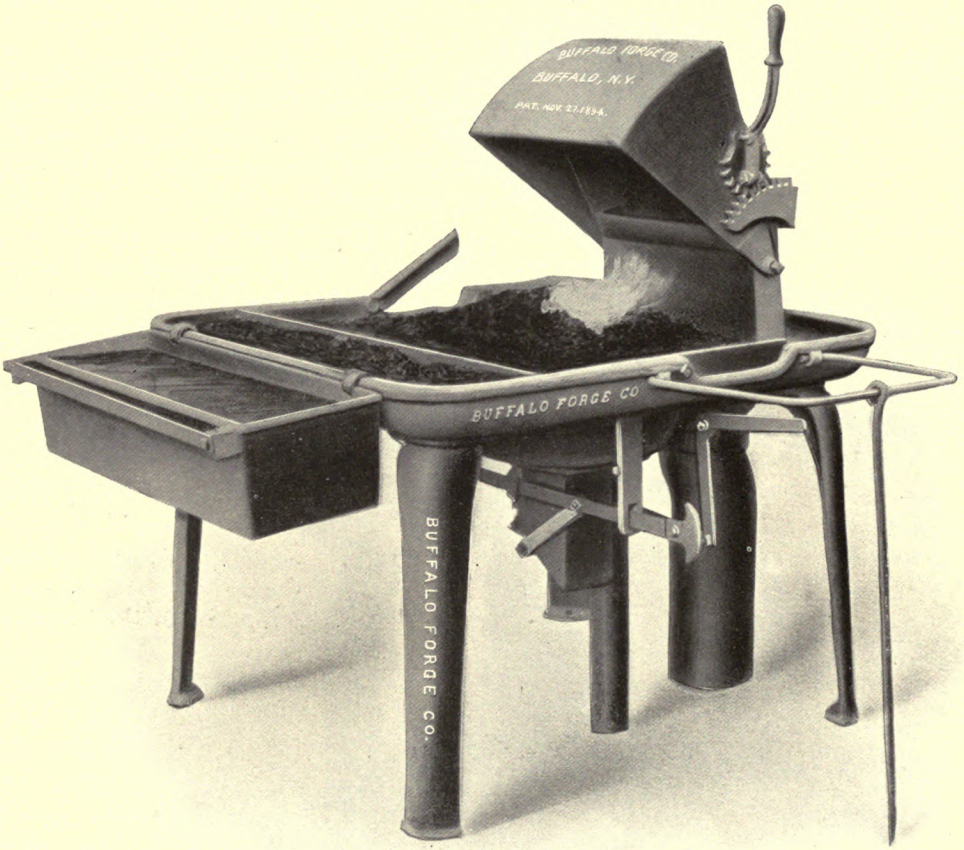
BUFFALO "B" VOLUME BLOWER,

FOR BOILERS, HEATING FURNACES, FORGES, ETC. RIGHT HAND BOTTOM HORIZONTAL DISCHARGE.

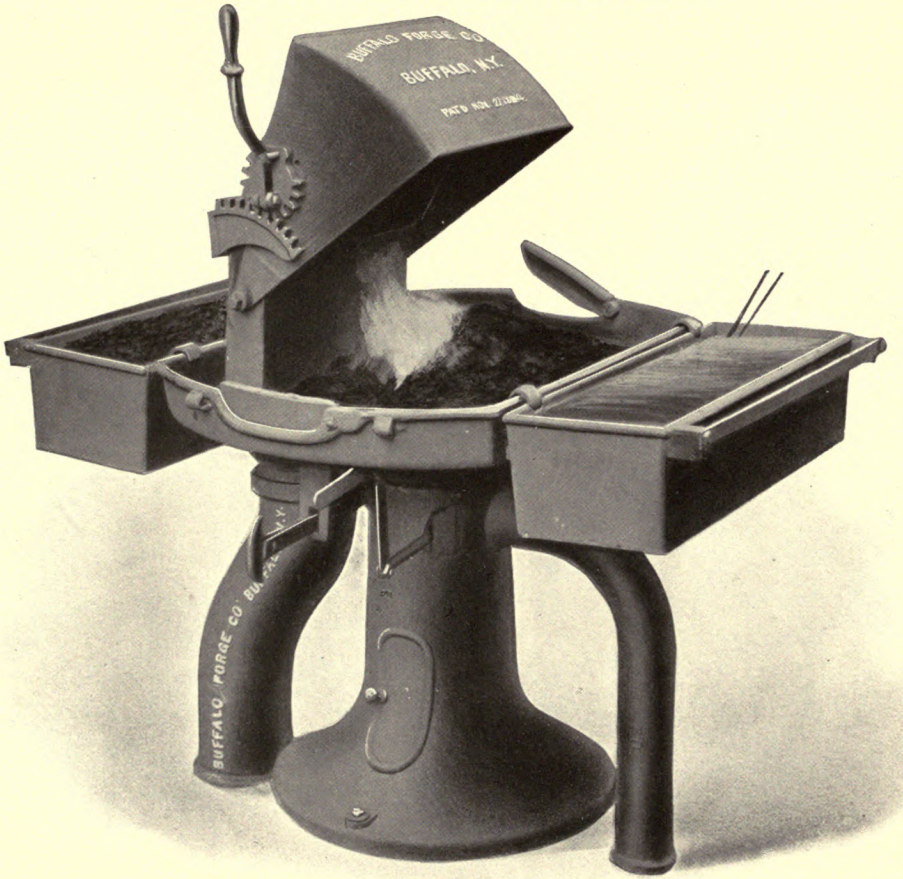


BUFFALO "B" VOLUME EXHAUSTER,

WITH OVERHUNG WHEEL, RIGHT HAND BOTTOM HORIZONTAL DISCHARGE, FOR EMERY AND BUFFING WHEELS, GASES, ETC.



BUFFALO STATIONARY BLAST FORGE No. 09D. (Patented Nov. 27, 1894.) WITH DOWN-DRAFT SMOKE EXHAUST HOOD,
ANTI-CLINKER DUMPING TUYERE, BLAST GATE, COAL AND WATER BOXES. FOR MODERATE AND HEAVY WORK.



BUFFALO STATIONARY BLAST FORGE No. 02D. (Patented Nov. 27, 1894.) WITH DOWN-DRAFT SMOKE EXHAUST HOOD, ANTI-CLINKER DUMPING TUYERE, BLAST GATE, COAL AND WATER BOXES. FOR TECHNICAL SCHOOLS, CARRIAGE SHOPS, ETC.

AMERICAN SCHOOLS OF MECHANICAL TECHNOLOGY,

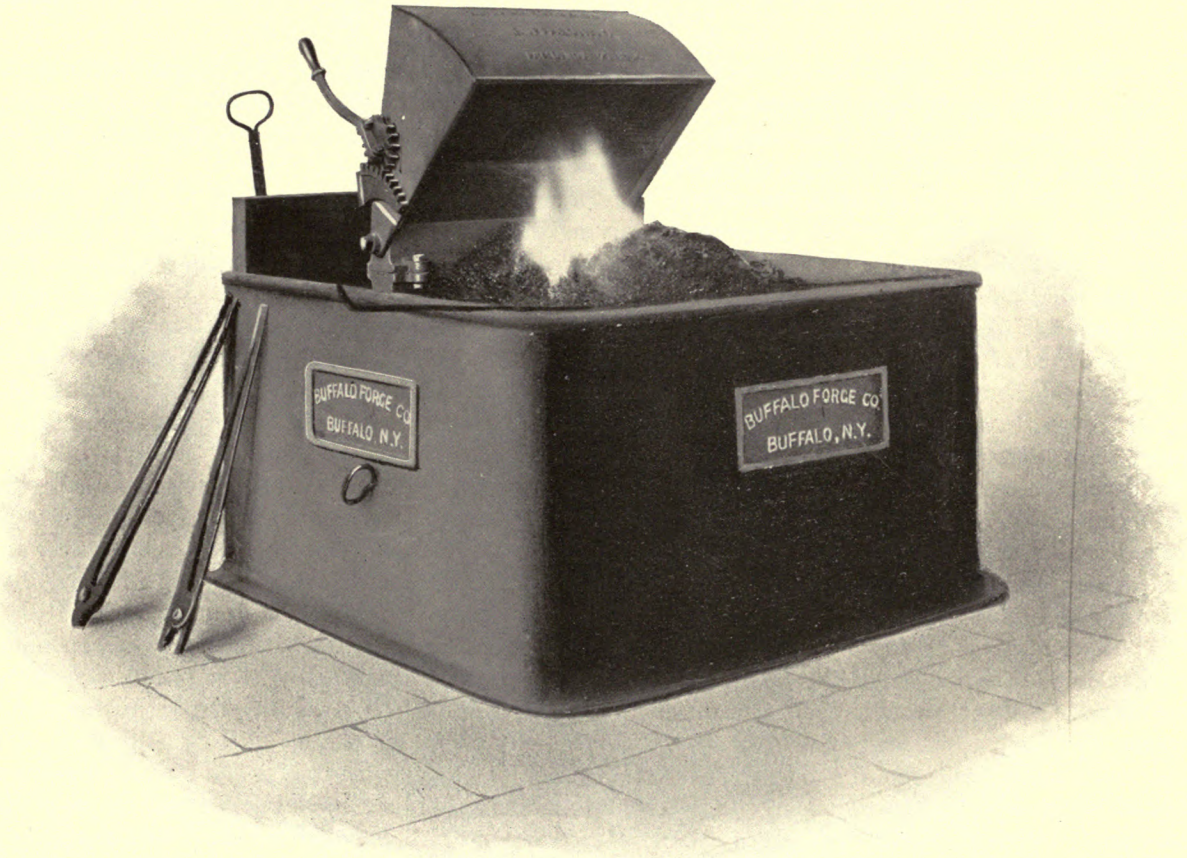
BUFFALO FORGE COMPANY EQUIPMENT.

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

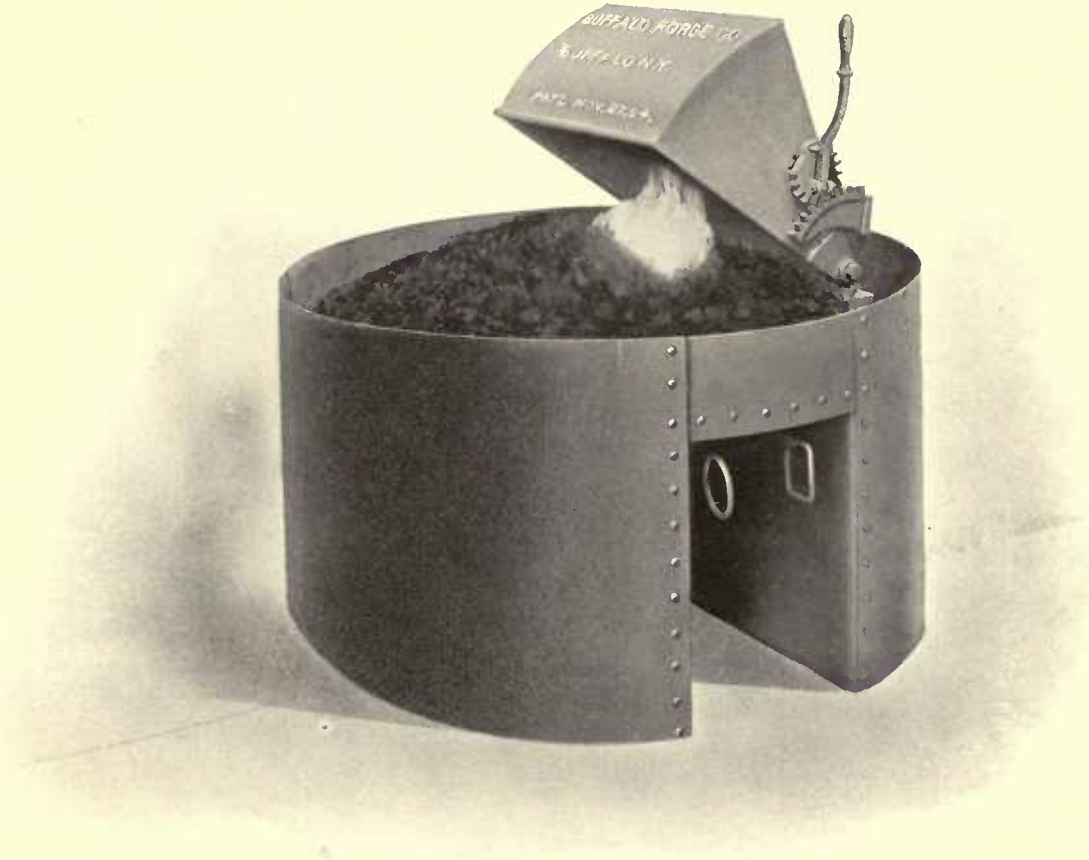
THE eighteen pages of illustrations of machinery herewith have been selected from our complete General Catalogue merely to show the more familiar forms or standard types. It has not even been possible to represent the various lines of apparatus embraced in our output. Detailed descriptions and prices are also eliminated, and for which see our illustrated library bound catalogue, which will be furnished upon application.

The Buffalo Stationary Forges on accompanying pages are widely used in the smith shops of schools of Mechanical Technology. A number were primarily designed for this service, while others are regularly used in industrial works. Many other styles than those here shown are built for manufacturing plants, and also for training schools. Catalogues illustrating the complete line will be cheerfully supplied. The term "Stationary Blast Forge" is not used because the forges are immovable like the old-fashioned brick type, for they are easily portable. It arises from the use of an independent blower fixed at a given point for supplying the blast. In fitting up a forge shop, either for a technical school or manufacturing establishment, the buyer who seeks a well arranged and efficient plant will include a variety of Buffalo Down-Draft Forges, locating those of largest capacity where the heaviest work is performed, likewise suitably placing those intended for light work. Buffalo Stationary Forges, though light in appearance, are very strong.

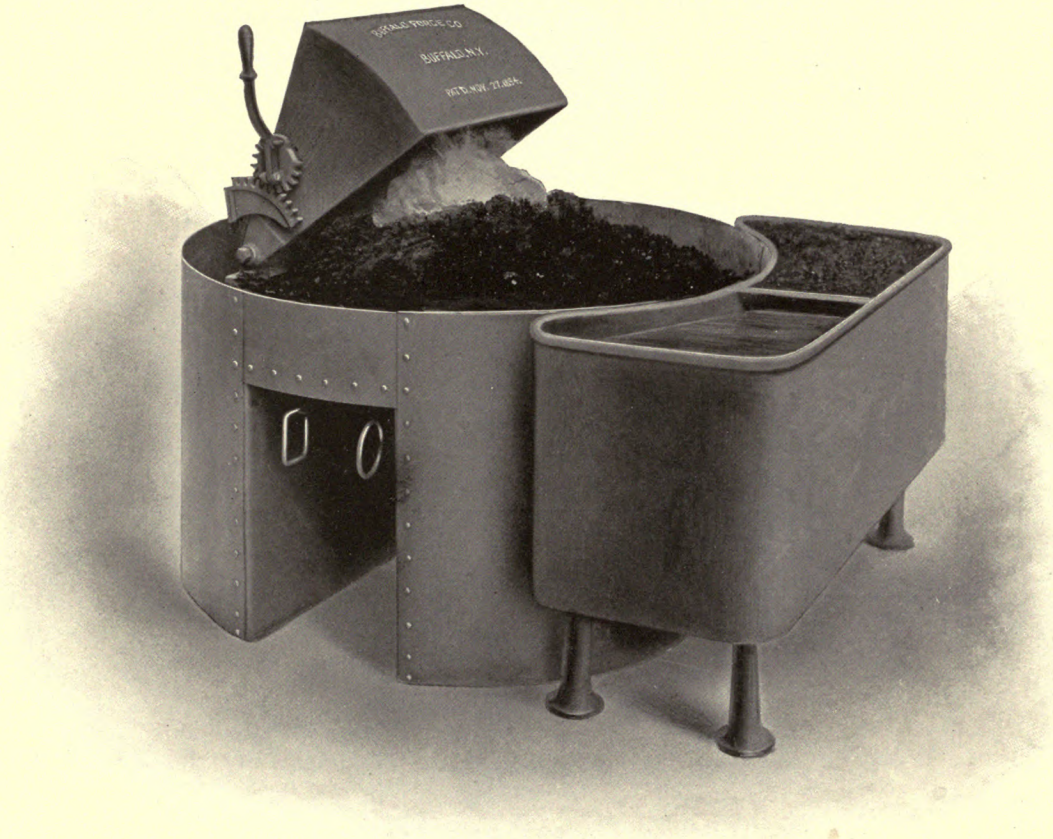
The Buffalo Patented Down-Draft Smoke Exhaust Forges represent all that is best in to-day's advanced practice of forge shop equipment. Their use is invariably advised excepting where it is desired to slightly increase the capacity of an existing plant without remodeling it. The first cost of a Buffalo Down-Draft Forge Shop equipment is very moderate, and here the expense practically ends. Repairs are seldom, if ever, required, and in durability and efficiency there is no room for comparison. The indestructibility of this equipment is clearly set forth in the example of the Stout Manual Training School, Menominee, Wis. The first building was totally destroyed by fire, but the forges sustained no injury. They were removed from the debris and erected in the new fire-proof structure. The same results have occurred in industrial works. With this modern equipment the atmosphere of the smith shop is as pure and agreeable to work in as the best machine shop. The gases and smoke are removed at the fire at once upon being generated. It is thus impossible for them to escape into the room. The mere fact that the photographs from which many of the illustrations on preceding pages were made were taken with green fires running at full blast causing maximum amount of smoke, is sufficient comment upon the desirability and superiority of this system. All hoods are of heavy cast iron; likewise the connection to the tile underground pipe. Enough cold air is incidentally drawn in and mixed by the action of the exhauster to avoid injury from heat. In summer this form of forge shop equipment also insures a minimum temperature.



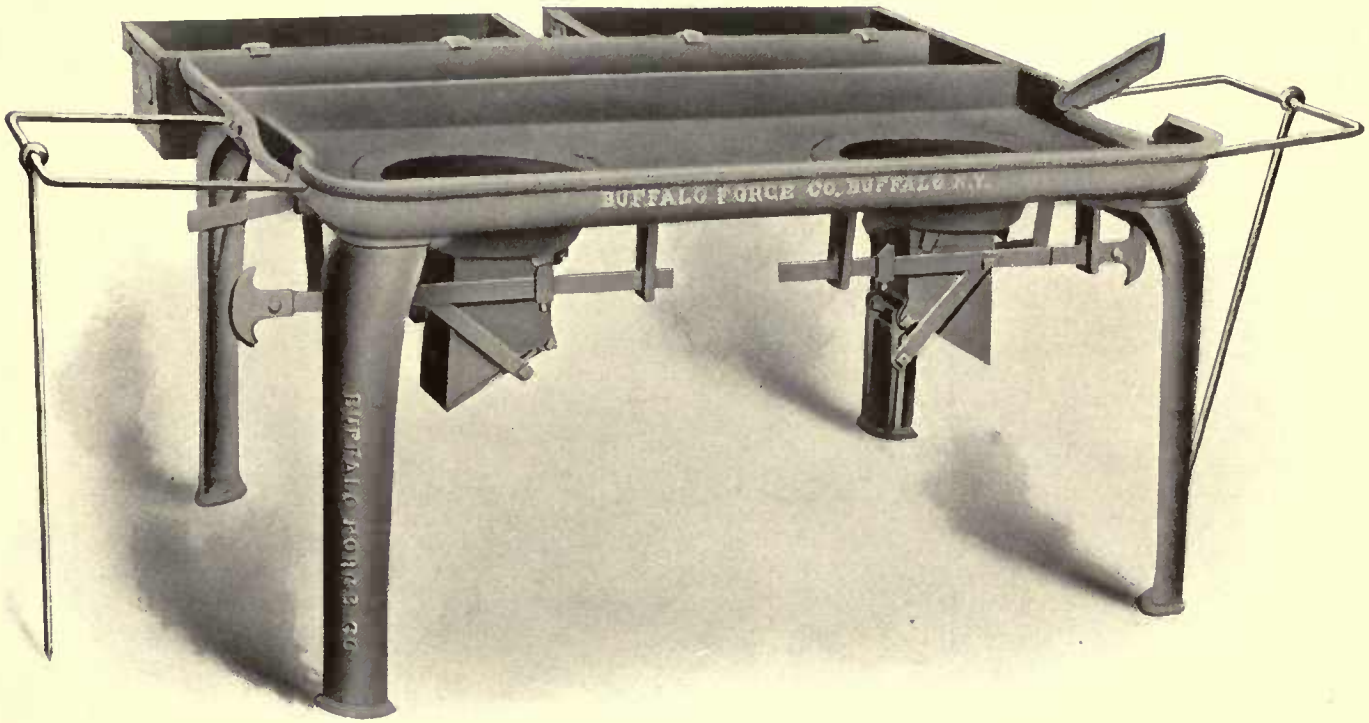
BUFFALO STATIONARY BLAST FORGE No. 0D. (Patented Nov. 27, 1894.) WITH DOWN-DRAFT SMOKE EXHAUST HOOD,
ANTI-CLINKER DUMPING TUYERE AND BLAST GATE. FOR EXTRA HEAVY WORK IN RAILROAD REPAIR SHOPS, ETC.



BUFFALO STATIONARY BLAST FORGE No. 07. (Patented Nov. 27, 1894.) WITH DOWN-DRAFT SMOKE EXHAUST HOOD,
ANTI-CLINKER DUMPING TUYERE AND BLAST GATE, STEEL PLATE CONSTRUCTION. FOR MODERATE AND HEAVY WORK.

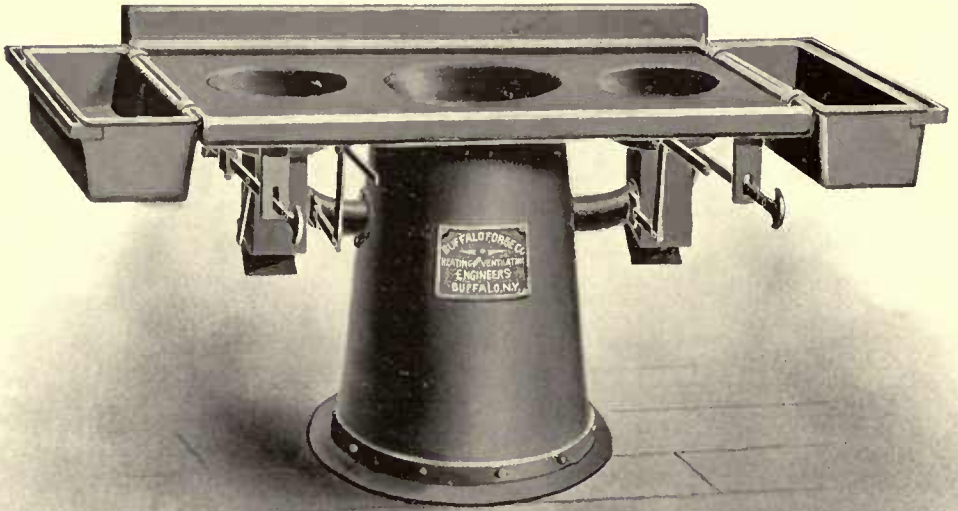


BUFFALO STATIONARY BLAST FORGE No. 07T. (Patented Nov. 27, 1894.) WITH DOWN-DRAFT SMOKE EXHAUST HOOD,
ANTI-CLINKER DUMPING TUYERE, BLAST GATE, COAL AND WATER BOXES, STEEL PLATE CONSTRUCTION.



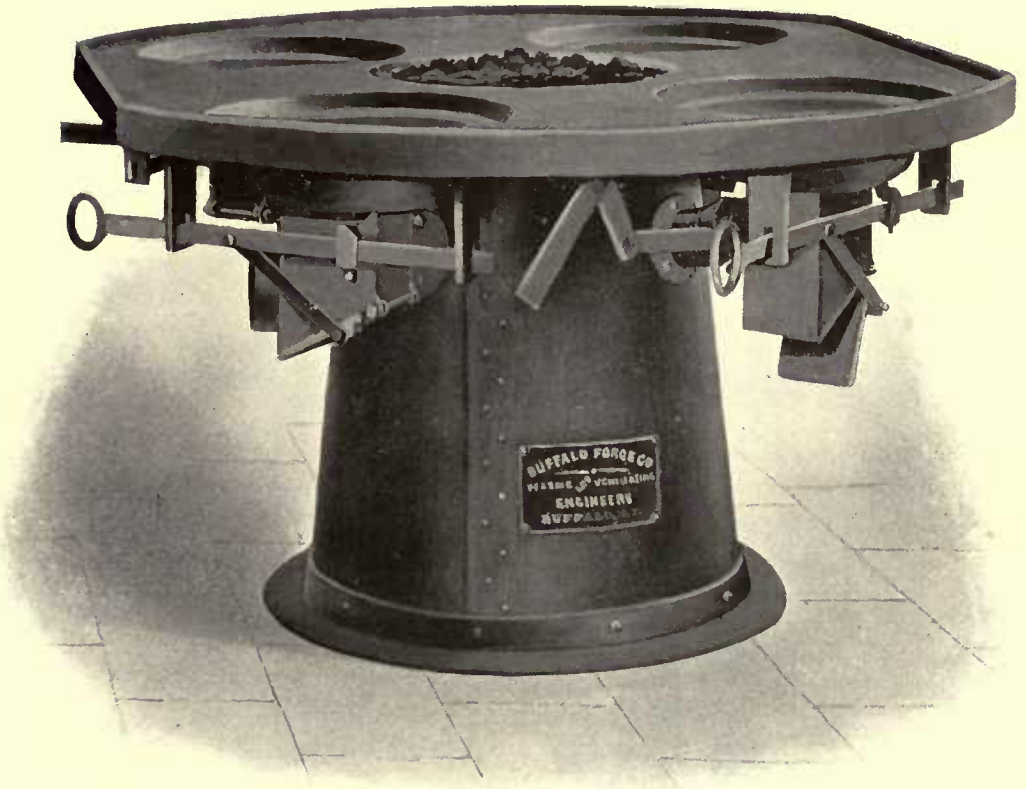
BUFFALO STATIONARY BLAST FORGE No. 04, TWO-FIRE TYPE FOR TECHNICAL SCHOOLS.

ANTI-CLINKER DUMPING TUYERES, BLAST GATES, COAL AND WATER BOXES, TOOL RESTS, ETC. MAY ALSO BE FURNISHED WITH BUFFALO DOWN-DRAFT SMOKE EXHAUST HOODS. (Patented Nov. 27, 1894.)



BUFFALO STATIONARY BLAST FORGE No. 05. TWO-FIRE TYPE FOR TECHNICAL SCHOOLS.

ANTI-CLINKER DUMPING TUYERES, BLAST GATES, COAL AND WATER BOXES, HEAVY STEEL PLATE AND IRON CONSTRUCTION. MAY ALSO BE FURNISHED WITH BUFFALO DOWN-DRAFT SMOKE EXHAUST HOODS. (Patented Nov. 27, 1894.)

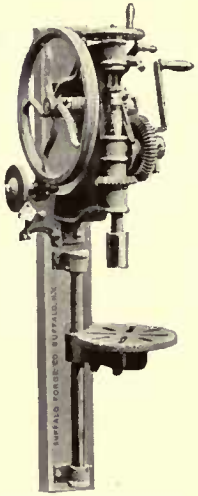


BUFFALO STATIONARY BLAST FORGE No. 06. FOUR-FIRE TYPE FOR TECHNICAL SCHOOLS.

ANTI-CLINKER DUMPING TUYERES, BLAST GATES AND COAL BOX, HEAVY STEEL PLATE AND IRON CONSTRUCTION, DRAWINGS OF SPECIAL DESIGN, WITH BUFFALO DOWN-DRAFT SMOKE EXHAUST HOODS (Patented Nov. 27, 1894) FURNISHED ON REQUEST.



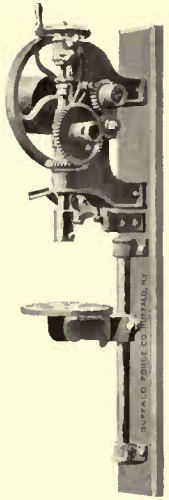
No. 0 Buffalo Blacksmith's Forge with Tank.



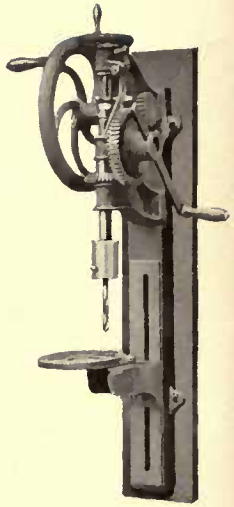
No. 61B with Emery Wheel.

Buffalo Drills Embody
More Desirable Points
Than All Others.

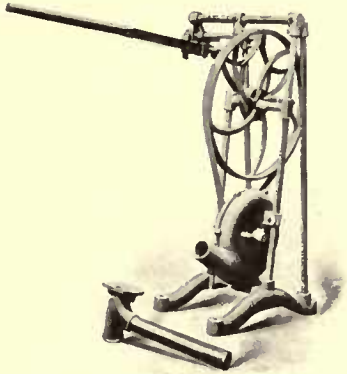




No. 61G with Cone Pulley and Countershaft.



No. 66 with Automatic Feed.



No. 3X Buffalo Iron Frame Hand Blower.



Buffalo Combined Punch, Shear, and Bar Cutter.

All Sizes and Styles
Described in a Special
Catalogue of Buffalo
Blacksmith Tools
Free upon Request.



Buffalo Tire Bender.

INDEX.

Page.

Allen Manual Training School, Austin, Tex., exterior, ... 48
" " " " " " interior, ... 49
A Model Blacksmith Shop, ... 82
Arkansas Industrial School, Fayetteville, exterior, ... 32
" " " " interior, ... 33
Armour Institute of Technology, exterior, ... 80
" " " " interior, ... 81
Barlow Industrial School, exterior, ... 74
" " " interior, ... 75
Big Four Forge Shop, interior, ... 112
" " " interior, ... 113
Blower "B," 130
Blower, Cupola or Steel Pressure on adjustable bed, ... 129
Boardman Manual Training High School, exterior, ... 22
" " " " " " interior, ... 23
Boston, Mass., Mechanical Arts High School, exterior, . . . 76
" " " " " " interior, . . . 77
Branch Normal College, Pine Bluff, Ark., exterior, ... 44
" " " " " " interior, ... 45
Buffalo Blacksmith Tools, Group, ... 140
Buffalo Forge Company's Works, Illustration, ... 6
" " " " Description, ... 7
Chicago Manual Training School, exterior, ... 78
" " " " interior, Forge Shop, . . . 79
Clemson College Main Buildings and Barracks, exterior, ... 50
" " Foundry, interior, ... 51
" " Engineering and Mechanic Arts Building, . . . 52
" " Forge Shop, interior, ... 53
Cleveland Central Manual Training School, exterior, ... 8
" " " " " exterior, ... 10
" " " " " interior, ... 11
Cleveland University School, exterior, ... 12
" " " interior, ... 13
Cleveland West Manual Training School, exterior, ... 14
" " " " " interior, ... 15

Page.

Colorado State Agricultural College, Fort Collins, exterior, . . . 18
" " " " " " interior, . . . 19
Columbia University, New York City, exterior, ... 42
" " " " " interior, ... 43
Copyright, ... 4
Dayton Y. M. C. A., exterior, ... 54
" " interior, ... 55
Denver, Colo., Manual Training High School, exterior, ... 62
" " " " " " interior, ... 63
Engine, Center-Crank Class "A," 122
" " and General Electric Company Generator, . 123
Engines, Upright Type, ... 124
" " and Triumph Electric Company Gencrator, . . 125
Exhauster "B," 130
Fan, Steel Plate Engine, ... 127
Foreword, ... 5
Forge 0D, ... 134
Forge 02D, ... 132
Forge 09D, ... 131
Forge 04, ... 137
Forge 05, ... 138
Forge 06, ... 139
Forge 07, ... 135
Forge 07T, ... 136
Forges, Description of, ... 133
Girard College, exterior, ... 38
" " interior, ... 39
Hampton Normal and Agricultural Institute, interior, ... 104
Heater, Fan System, ... 128
House of Refuge, Randall's Island, exterior, ... 92
" " " " interior, ... 93
Howaldtswerke, Kiel, Germany, interior, ... 120
" " " interior, ... 121
Illinois Soldiers' Orphans' Home, Normal, exterior, ... 72
" " " " " interior, ... 73

Page.

Iowa Agricultural College, exterior, ... 84
" " " interior, ... 85
Kentucky State College, Lexington, exterior, ... 58
" " " " interior, ... 59
Lincoln Institute, Jefferson, Mo., exterior, ... 94
Louisville, Ky., Manual Training School, exterior, ... 16
" " " " " interior blacksmith shop, 17
Massachusetts State Reformatory, exterior, ... 20
" " " interior forge shop, ... 21
Mechanical Draft Apparatus, ... 126
Miller Manual Labor School, exterior, ... 56
" " " " interior, ... 57
Milwaukee East Side High School, interior, ... 110
Milwaukee West Side High School, exterior, ... 102
" " " " " interior of Blacksmith Shop, . 103
Mississippi Agricultural College, interior, ... 83
New Conklin Wagon Works, interior, ... 117
New Mexico College of Agriculture, Mesilla Park, two views, . . 95
New York State Reformatory, exterior, ... 64
" " " interior, ... 65
N. Carolina Agric'l and Mechanical College, Greensboro, exterior, 68
" " " " " " interior, 69
Ohio State University, Hayes Hall, ... 30
" " " " " interior blacksmith shop, . . 31
Peoria & Eastern Railway Co., interior, ... 118
" " " " " interior, ... 119
Pennsylvania Reform School, exterior, ... 34
" " " interior, ... 35
Pennsylvania Soldiers' Orphans' Industrial School, exterior, . . . 106
" " " " " interior, . . . 107
Prairie View State Normal School, exterior, ... 86
" " " " " interior, ... 87
Quotation, ... 1
Rose Polytechnic Institute, Terre Haute, exterior, ... 66
" " " " " interior, ... 67
Sibley College, Cornell University, exterior, ... 28

Page.

Sibley College, Cornell University, interior blacksmith shop, . . 29
Smith, Jackson G., interior, ... 116
State House of Refuge, Randall's Island, N. Y., ... 92-93
Stout Manual Training School, Main Building, ... 88
" " " " Machine Shop, interior, ... 89
" " " " present Forge Shop, " 90
" " " " previous " " " 91
Technical School Equipment, Description, ... 9
Technical School Equipment, Description, ... 111
"The Village Blacksmith," 2
Throop Polytechnic Institute, exterior, ... 36
" " " interior, ... 37
Title, ... 3
Toledo University, exterior, ... 108
" " interior, ... 109
Tudhope Carriage Co., interior, ... 114
" " " interior, ... 115
University of Illinois Machinery Building, exterior, ... 26
" " " " interior, ... 27
University of Missouri, exterior, ... 40
" " " interior, ... 41
University of Nebraska, exterior, ... 70
" " " interior, ... 71
Utah Agricultural College, exterior, ... 100
" " " interior, ... 101
Vanderbilt University, Nashville, exterior, ... 98
" " " interior, ... 99
Virginia Polytechnic Institute, exterior, ... 60
" " " interior, ... 61
Washington, D. C., Central High School, interior, ... 105
Washington University, St. Louis, Main Building, ... 96
" " " interior, ... 97
West Virginia University, exterior, ... 46
" " " interior, ... 47
Wisconsin School for the Deaf, exterior, ... 24
" " " " interior, ... 25

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

THIS BOOK IS DUE ON THE LAST DATE STAMPED BELOW

AN INITIAL FINE OF 25 CENTS

WILL BE ASSESSED FOR FAILURE TO RETURN THIS BOOK ON THE DATE DUE. THE PENALTY WILL INCREASE TO 50 CENTS ON THE FOURTH DAY AND TO $1.00 ON THE SEVENTH DAY OVERDUE.

JUN 13 1944

JUN 14 1944

3Jun'50HF

SENT ON ILL

FEB 02 1995

U. C. BERKELEY

LD 21-10m-5,'43(6061s)

YE 10217

7756
T73
B6

UNIVERSITY OF CALIFORNIA LIBRARY